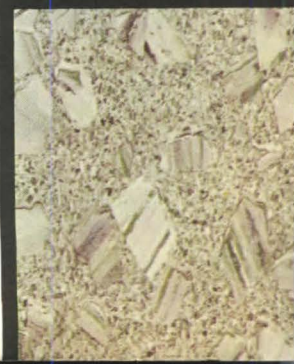


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96 FIELD THEORY FILM ON LAB PLANNING: A film produced by the Chicago office of SOM was designed to introduce systems analysis and Field Theory as they can be applied to buildings and furniture.

98 FIELD THEORY USE TO DATE: Six buildings designed on the basis of Field Theory principles. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

104 CIRCLES ON SQUARES: Designing a two-telescope observatory, the architects varied a geometrical theme: Circular domed enclosures rest on tetrahedral framework atop a square base. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

108 LIBRARY FOR WELLS COLLEGE: A lattice pattern of rotated squares and octagons is the basis of the geometrical plan for a college library. SKIDMORE, OWINGS & MERRILL, ARCHITECTS.

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134 FEEDBACK ON THREE SCHOOLS: What are the criteria for good school design? Examination of three different schools reveals successes and failures discovered with use, but no standard rules.

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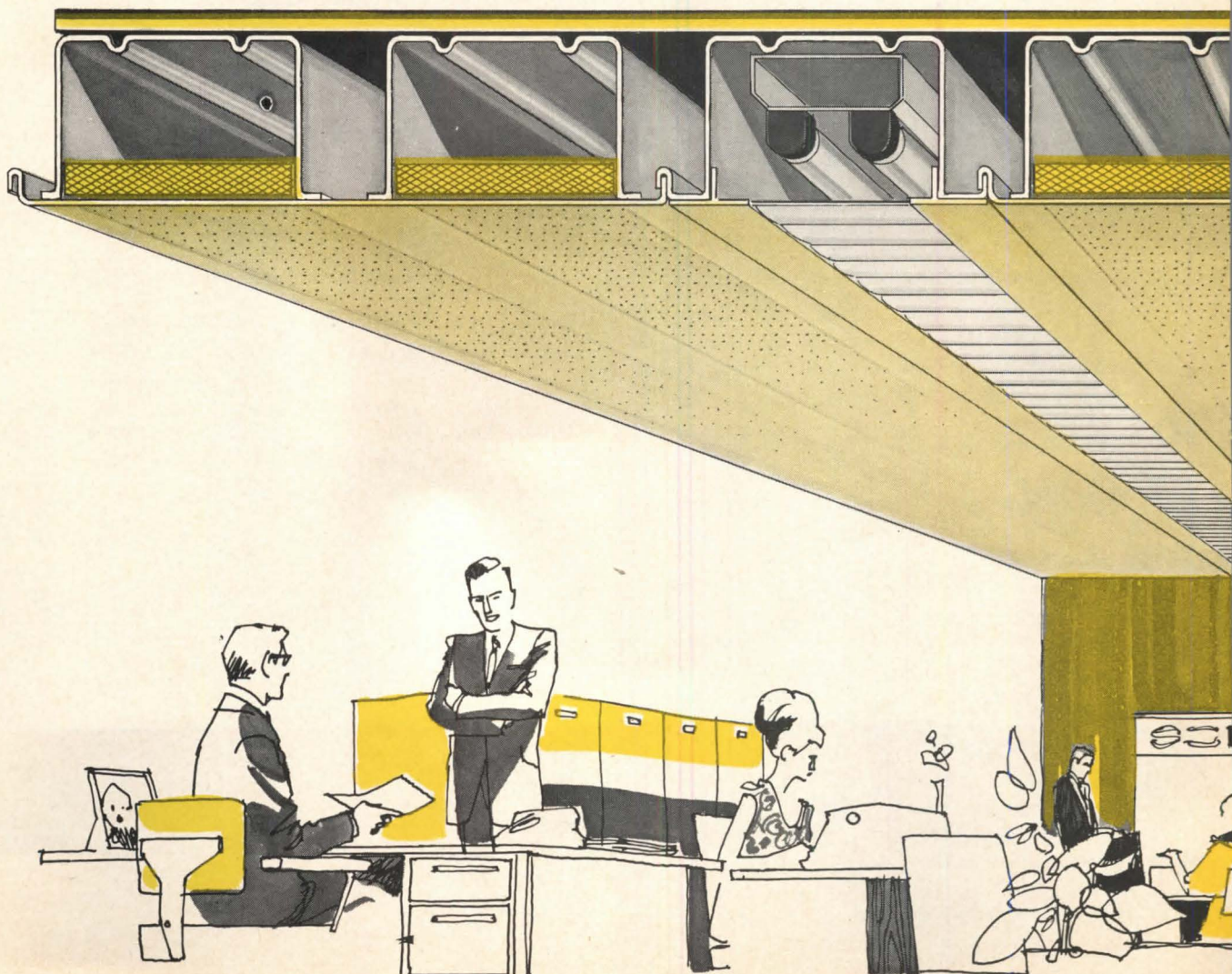
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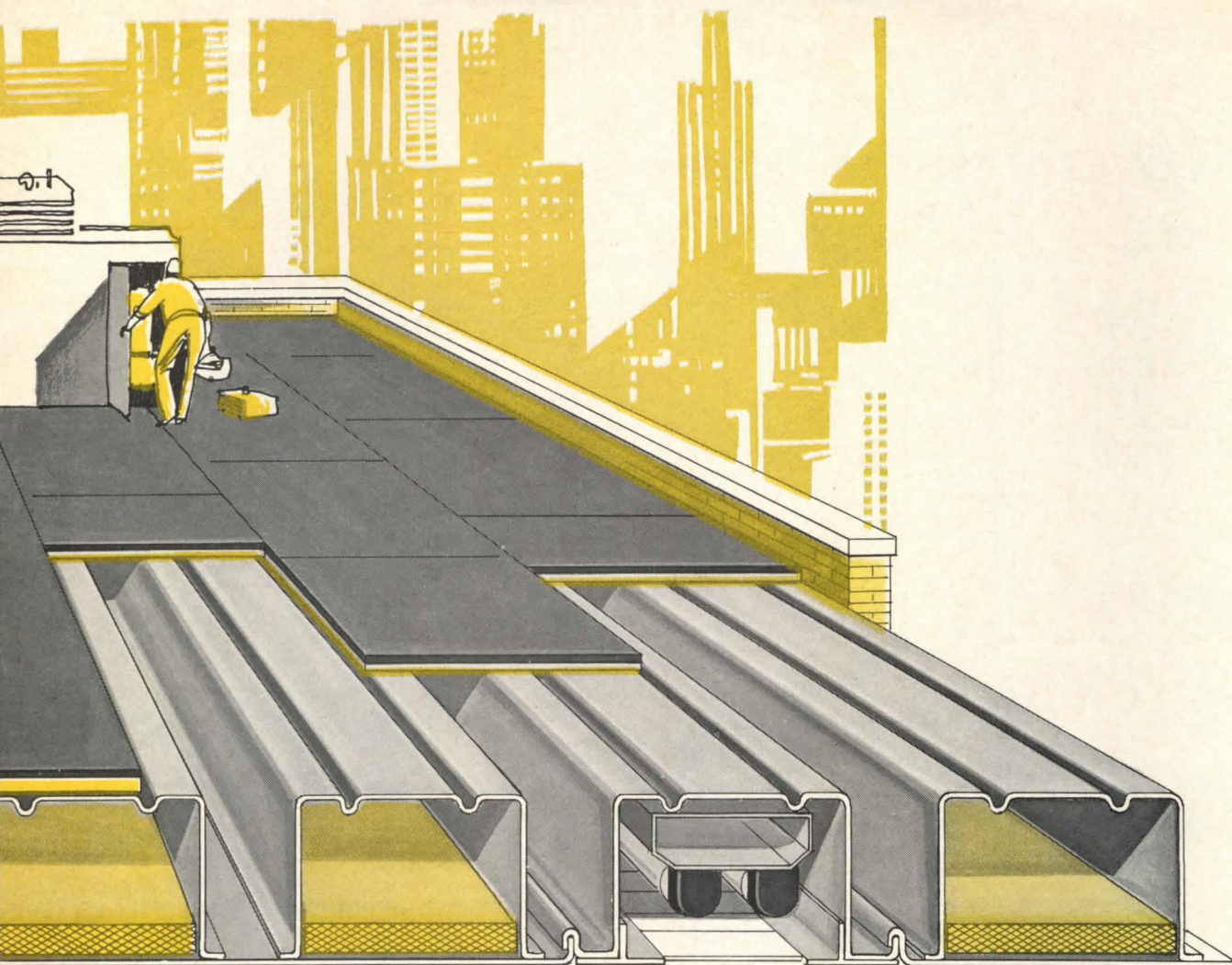


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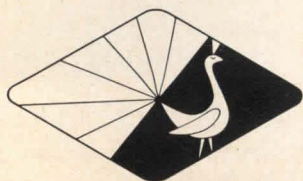
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VIEWS

The Future of Architecture

Dear Editor: Perhaps my effort as a member of the P/A Design Awards jury (JANUARY 1969 P/A) may not be fully understood by your readers. For this reason, I offer the following observations:

The first award, with its disregard for sophistication of detail, with its misuse of materials, with its disregard for the individuals' varied demands of heating or cooling, and its orientation toward the multipurpose space, is a mandate to industry to take over our lives and reshape us without sympathy.

It is not just the fact that the professional field of architecture is relinquishing its leadership to the industrialist, but that man himself is abdicating from the society in which he has derived his cultures. He no longer looks for the touch of individualism. He wants to lose himself in the thin extrusions of a machine age whose directions and decisions are determined by a hierarchy of electron tubes.

What is the significance of this to us? It seems to me that the future of architecture will be affected by new methods of marketing and industrial processes, but it will include the social and political forces as well.

Man's romantic past, his concern for nature and art must be retained, his change for the future must come from yesterday's poet, today's challenger, tomorrow's problem solver.

However blurred man's values may be, the future is still his to hold. His individuality must not only be defended, but enhanced. He must be recognized within his own identity, and not that of the machine he invented and uses.

R. M. GENSERT
Cleveland, Ohio

Design Awards Revisited

Dear Editor: Concerning "the most portentous of the projects that we finally selected" (JANUARY 1969 P/A), which demonstrated "the preservation of . . . buildings as the important decision," I am delighted that James Polshek's Albany Project has been recognized. I hope that it may be influential as a prototype, but for the record it might be noted that "the important decision" to preserve the facades of these buildings can better be attributed to active concern of the commu-

nity than to enlightenment of client or architect.

Those who first worked to preserve the quality of this neighborhood were not, I fear, aware of "a coming of age of modern architects in terms of their leadership of responsible preservation efforts."

Although a few local architects did indicate some interest in "Saving Elk Street," and although the client and his architect did eventually recognize the contextual value of their several buildings, which are not distinguished in themselves, it may be more the sensitivity, taste, and leadership evidenced by the Albany Community that gave initial direction to this significant project.

PAUL MALO
Assistant Professor
School of Architecture, Syracuse University
Syracuse, N.Y.

In the Bowels of America

Dear Editor: When I suggested that you "cut the Venturi—" (VIEWS, JANUARY 1969 P/A), I never thought you would print it.

Your editorial reply to a letter from planner Carl Lindbloom in the same issue, "Small-Timers Fight It Out," is excellent and underscores my reason for writing. Although unfortunately true, you should use it to remind planners and architects continually that, while they go on perpetuating the graphic arts, the lawyers and public administrators go on "doing" America—inheriting the earth. That is why Venturi's small-time buildings and rediscovery of "strip" development may provide him with his jollies, but they really are a waste of space in any architectural magazine.

Planning and architectural education is irrelevant; the professional stature of the AIA and AIP is nil and ludicrous; planners and architects are technicians, buried in the bowels of public agencies and that great America-building machine—Corporate America. We are not credible because we neither know nor understand the forces creating the environment. And we are not political.

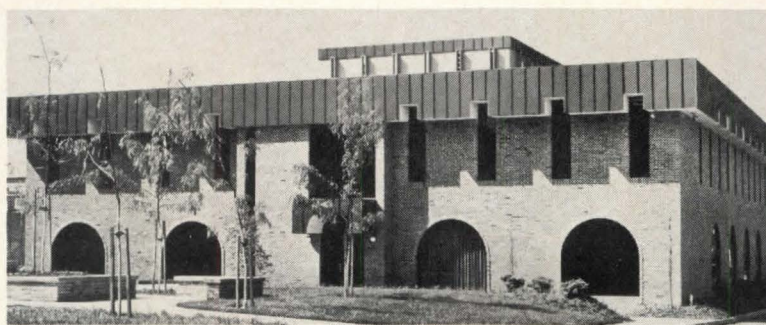
So much for architectural critics, Venturi, the Philadelphia-Kahn School, and spoofs.

R. DEAN MERIDITH
Philadelphia, Pa.

A New Profession?

Dear Editor: Your excellent Editorial in the DECEMBER 1968 P/A underlined problems in architectural schools that have developed due to an anachronistic professional approach to education. The revolution has started in our schools because students see an incredible waste of energies currently being expelled within the

Continued on page 16



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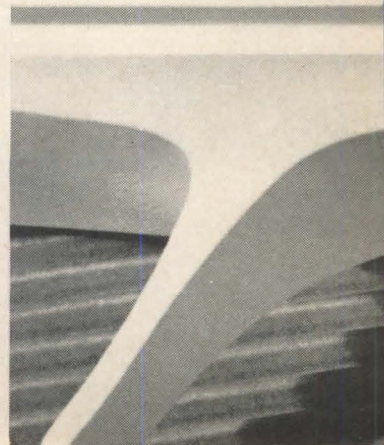
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This exciting new landmark will soon be a part of the San Diego skyline. It's the Adams Avenue Overpass. Part of the Mission Valley freeway project. A monolithic reinforced concrete span that will reach out 268', rise 80' above the freeway floor, nestle beautifully on a ridge that can be seen for miles around. It's a curvilinear 3 span structure with inclined bents. Easy to look at. Economical to build. Virtually maintenance-free.

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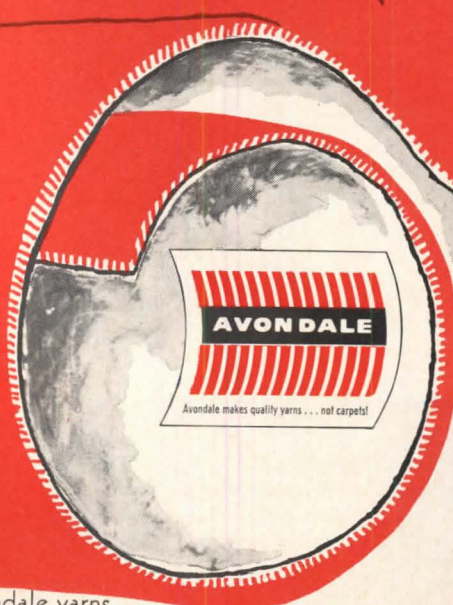


Adams Avenue Overpass. Project designed by the California Division of Highways Bridge Department. Cast-in-place box structure containing six cells. Bridge Department used a computer in preparing design. Depth of structure changes continuously from end to end, however, fascia depth is consistent from abutment to abutment. Depth of box unit is 15' at piers, 7' at abutments, and midspan is 268'. Design loading: AASHO HS 20-44. Seismic loads were also considered. About 730 tons of steel will be required—bars range in size from #4 through #18. Hollow cells provide for utilities. Contract cost: \$13.01 per square foot, of which \$8.98 goes for superstructure. Estimated cost of curvilinear design is roughly the same as a structure designed with vertical columns and straight soffits.

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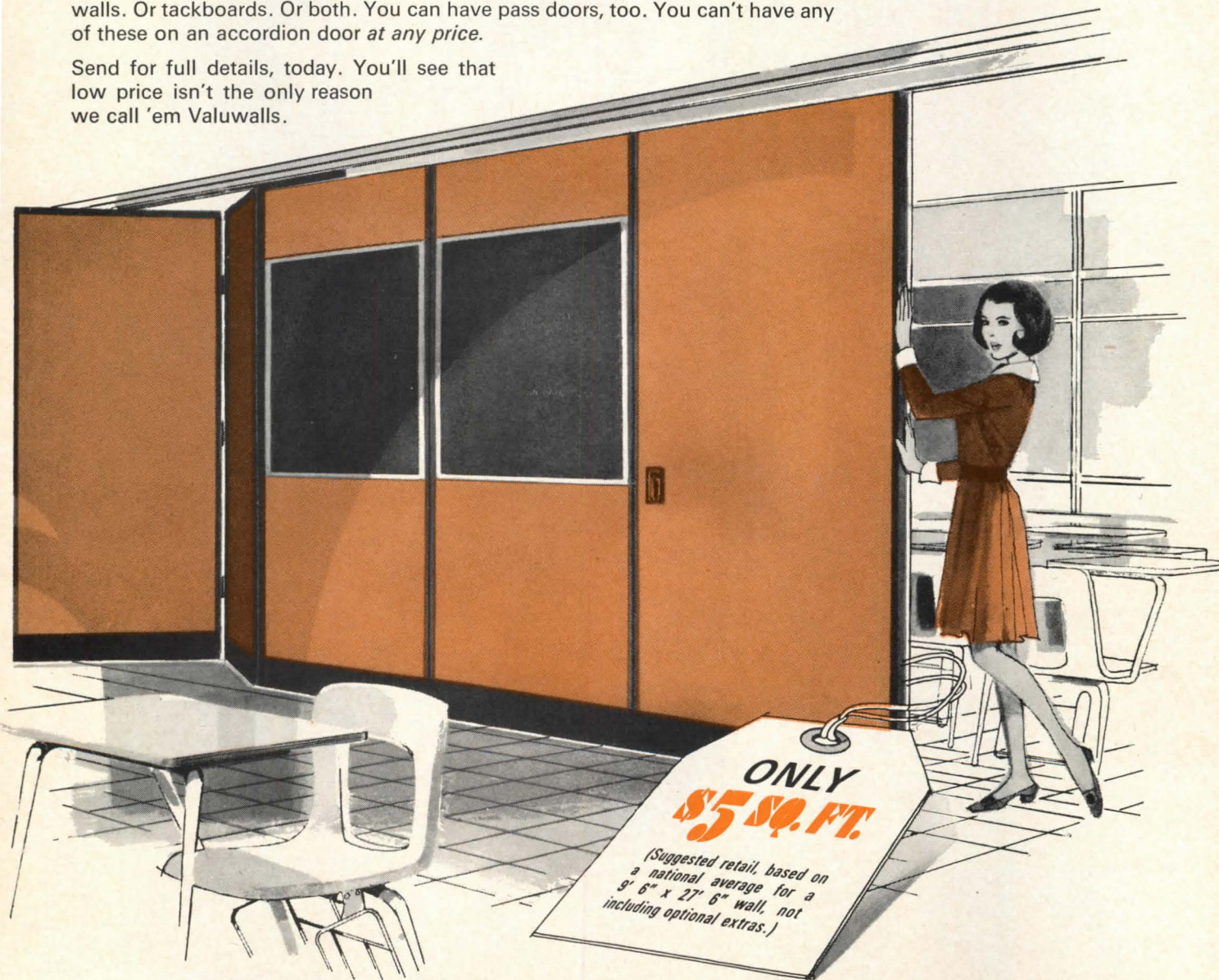
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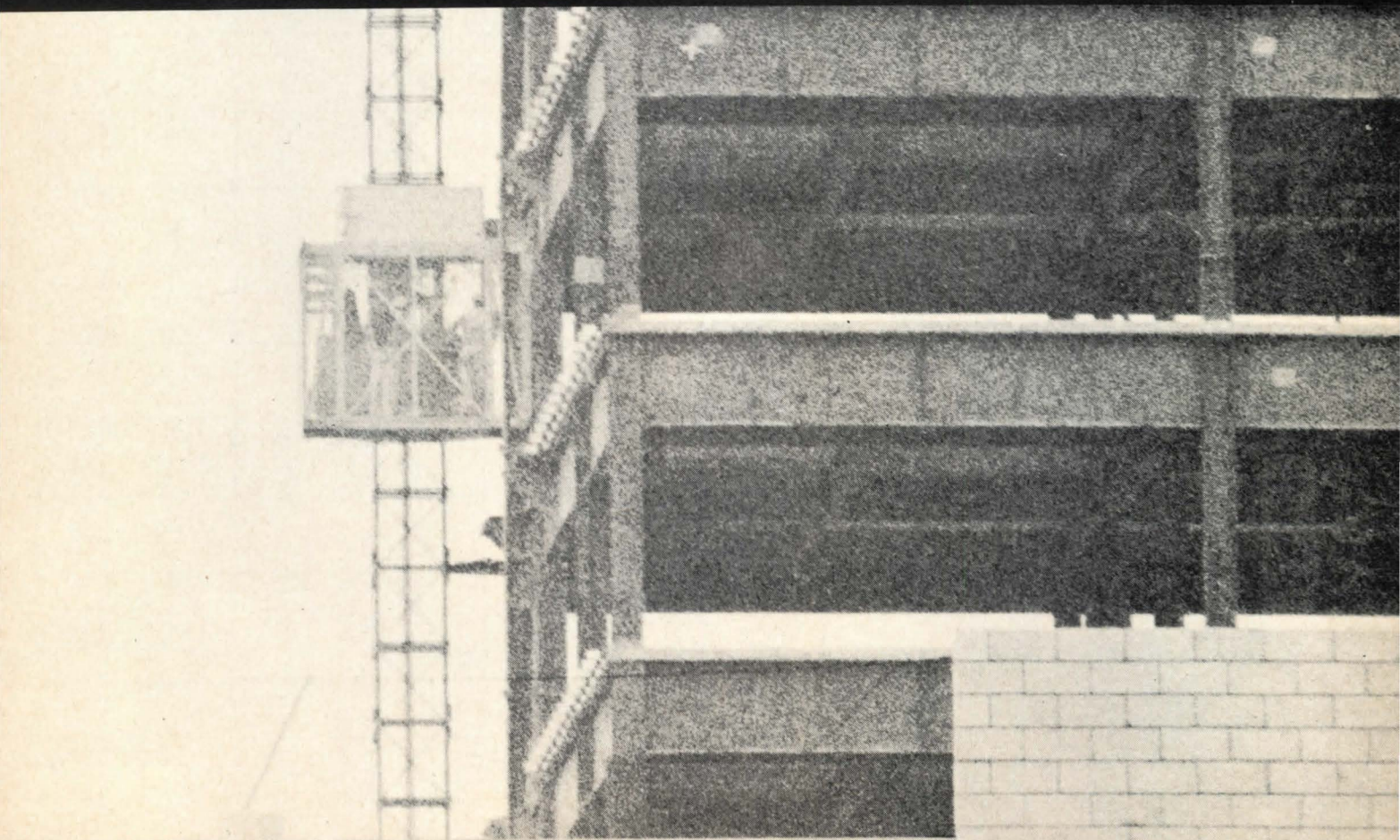


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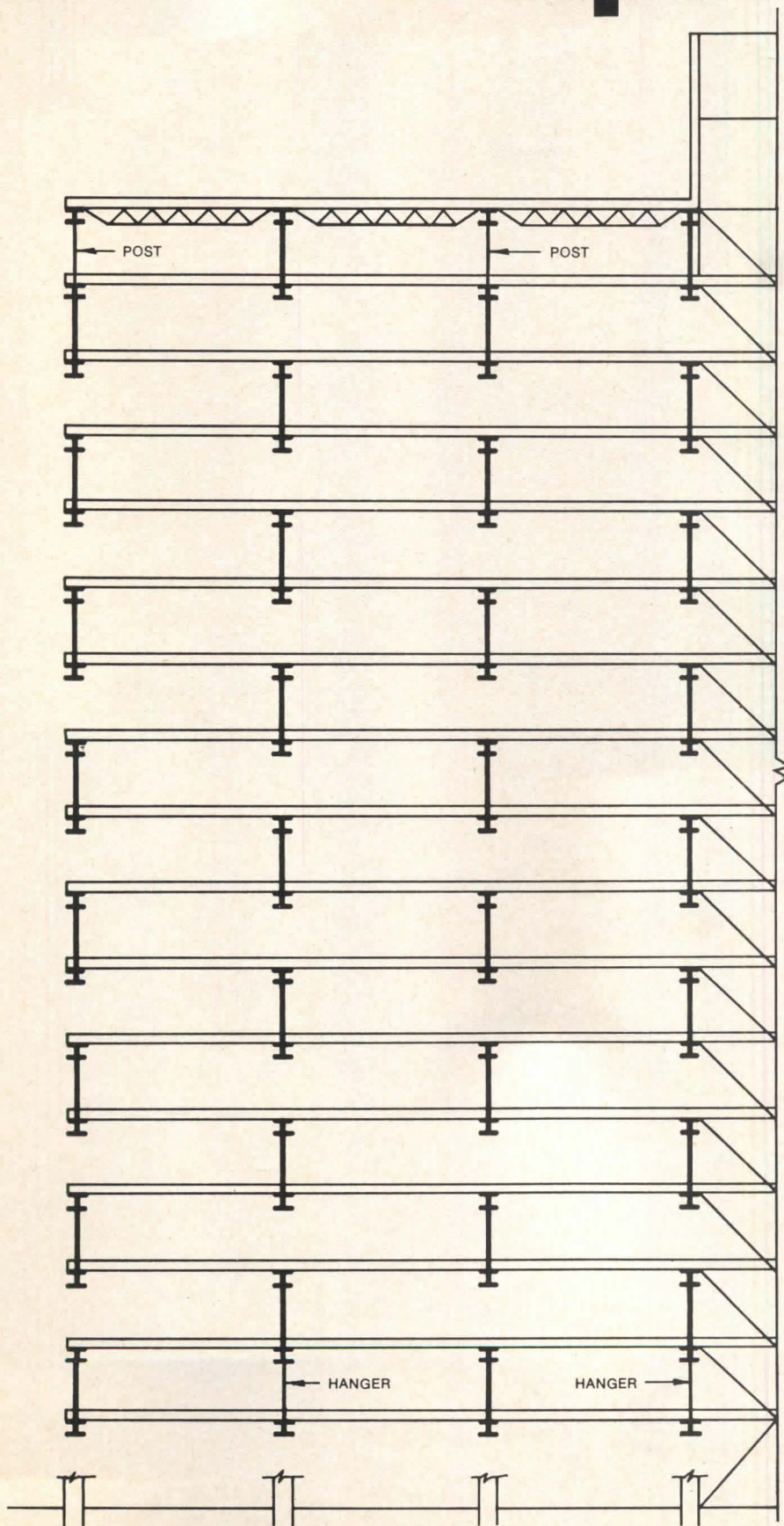
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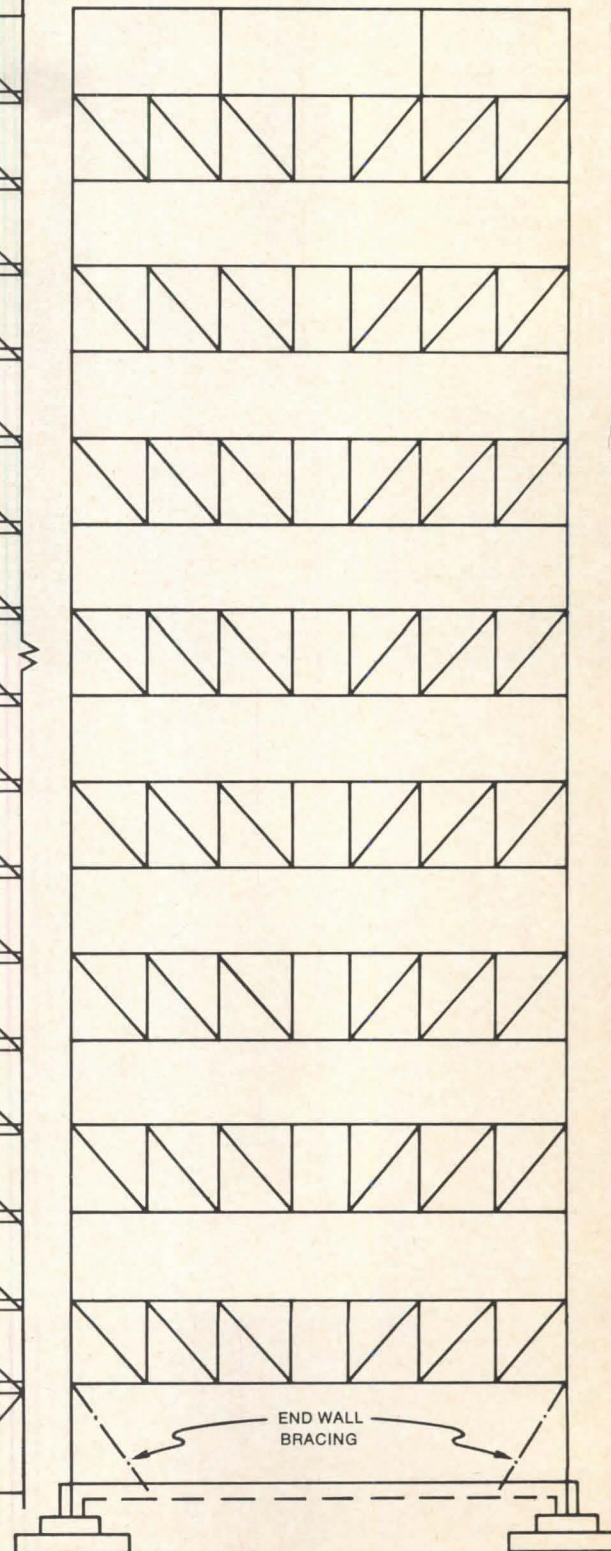
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Apartments:



Half longitudinal section:
staggered trusses.



Cross section:
(Note corridor space in center of truss.)

when steel goes up costs come down.

First cost is just one of the ways to save with steel. This 186-unit apartment building shows how imaginative design with steel brought a project in at \$59,580 below budget.

The building is a low rent housing project for the elderly. Two 17-story towers flank a service core. Each apartment contains 455 sq. ft. The assignment was to design a building for pleasant living within a modest budget.

After evaluating several structural systems, the architects found their answer in a *staggered steel truss system*. This is the first use of the staggered truss system, which was developed at MIT in a research program sponsored by U. S. Steel.

Story-high trusses, spanning the building's 52'0" width, are set in a staggered pattern (see diagram). They are located within the separating walls of alternate apartment units. Precast concrete floors rest on the top chord of one truss and on the bottom chord of another truss. The floor slabs act as diaphragms together with the trusses to effectively resist wind loads.

Total steel requirement for the building was about 480 tons for an average weight of 6.8 lbs. per sq. ft. The A572 steels used in the welded trusses are USS EX-TEN 50 and 60 High-Strength Low-Alloy Steels (50,000 and 60,000 psi min. yield points respectively). Construction cost, including mechanical and electrical bids, was \$2,282,870. Sq. ft. cost: \$16.31.

Structural Report

This is one of many ways to keep costs down with steel. Used imaginatively, steel usually wins out in



HOUSING FOR THE ELDERLY, 1300 Wilson Ave., St. Paul, Minn. Owners: Housing and Redevelopment Authority of the City of St. Paul. Architects: Bergstedt, Wahlberg & Wold, Inc. Structural Designers: Bakke & Kopp. Structural Engineers: Schuett-Meier Co. General Contractor: Knutson Construction Co. Structural Fabricator: The Maxson Corporation. Structural Erector: Sandberg Erectors.

first cost compared with other building materials. In the long run, there's no question. Only steel-framed buildings can be altered at low cost when it comes time for major remodeling.

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United States Steel

Continued from page 6

profession, these energies being primarily spent on the minority who can afford an architect.

We are talking about new life styles and a new profession. It is not too surprising that the old profession has chosen to be left behind in Chicago, but can the AIA honestly invite its student members to a convention in Daley City?

CHIP LORD
San Francisco, Calif.

Alcoa Building

Dear Editor: To complete fairly your description of the integration of structure into the architectural expression of the Alcoa Building (DECEMBER 1968 P/A), it is necessary to explain the structural meaning of discontinuing the seismic trusses above the plaza level. The seismic shear, which is close to its maximum at this point, must be taken into the foundations in one of two manners, which is not clear from the article: either by transmitting it through the floor slab to interior shear walls, or by transmitting it, and resultant large bending moments, through the columns. Either way, it would seem that architectural considerations have necessitated a compromise in the structural clarity and economy.

KENNETH KRUGER
Newark, N.J.

Vandals Play

Dear Editor: Buchanan School Play-

ground (OCTOBER 1968 P/A). The story of the afternoon of October 6, 1968, Washington, D.C., as told by Ellen Montague, age 8:

"We were going to a new park on 13th and E Streets, S.E. When we got there, we saw that some teen-age Negro kids had sprayed water into a basketball court that went down, and they were throwing all the stuff they could get their hands on from a nearby building into it. We stayed there a little while and played.

"Then my father told Mommy we should go tell the police they were wrecking the playground. We went and we looked all over for a policeman, and finally Daddy saw one, but he was parked on a one-way street so Daddy had to turn around and come in the other side. Daddy told him that some teen-age Negro boys were wrecking a new playground. The policeman turned on the little radio in his car and told the police station to send another car to 13th and E Streets.

"Then we drove back to the playground. Finally, a police car came. Daddy told him all that happened, and it scared away the gang. Then another police car came—a Negro policeman—and he went over and asked some questions of some of the people there, and then they tried to turn off the water but the policeman couldn't find how to turn it off. A little Negro boy knew how to turn it off and turned it off. Then the policeman went away.

"Then we played at the playground a

couple of minutes, and then we went home."

Unfortunately, the answers to slum problems are not as simple as Mr. Breines and others might have hoped. It certainly was a beautiful playground, but maybe it should have been located closer to the local housing and built by the local people.

HARRY MONTAGUE
Washington, D.C.

Report From a Truant Officer

Dear Editor: The distorted, kinetic light experience of the fragmented existing elements consummately calculated by using meticulously proportioned lines and spaces supergraphically illustrated in the OCTOBER 1968 P/A would make most people throw up, rather than kick a building. As a truant officer of some 30 years, I've often pondered the kind of environment which has, in recent years, spawned the S.D.S. and other anti-Establishment types. The October issue vividly and conclusively gave us a rat's eye view of what they crawl out of and flop back to. There was, as I recall, a conspicuous absence of toilet facilities or bathtubs. Was this intended? Are you hinting at something?

Let's have less of this superficial, tricky, repetitive and shallowly ornamental nonsense. When are you going to publish something on How to Flood New York? It needs it.

IRVING FELT
New York, N.Y.

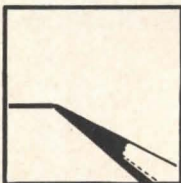
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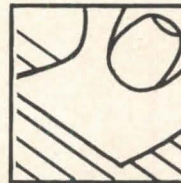
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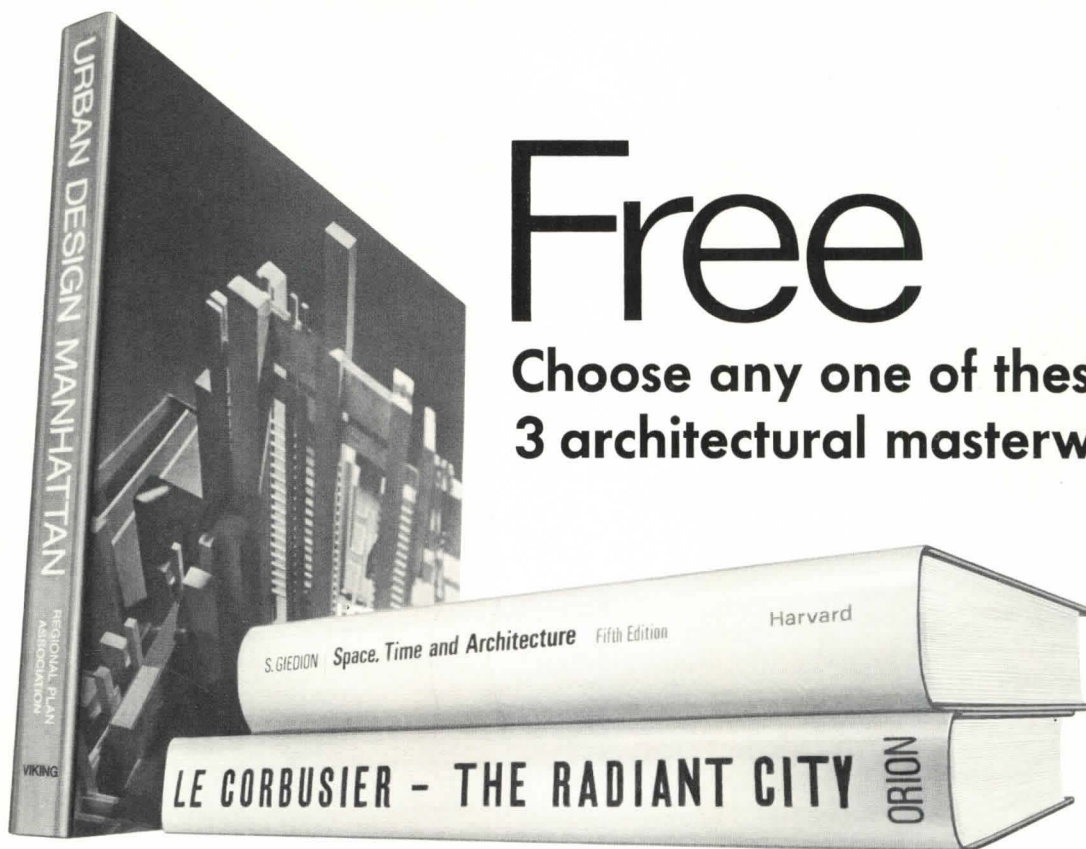
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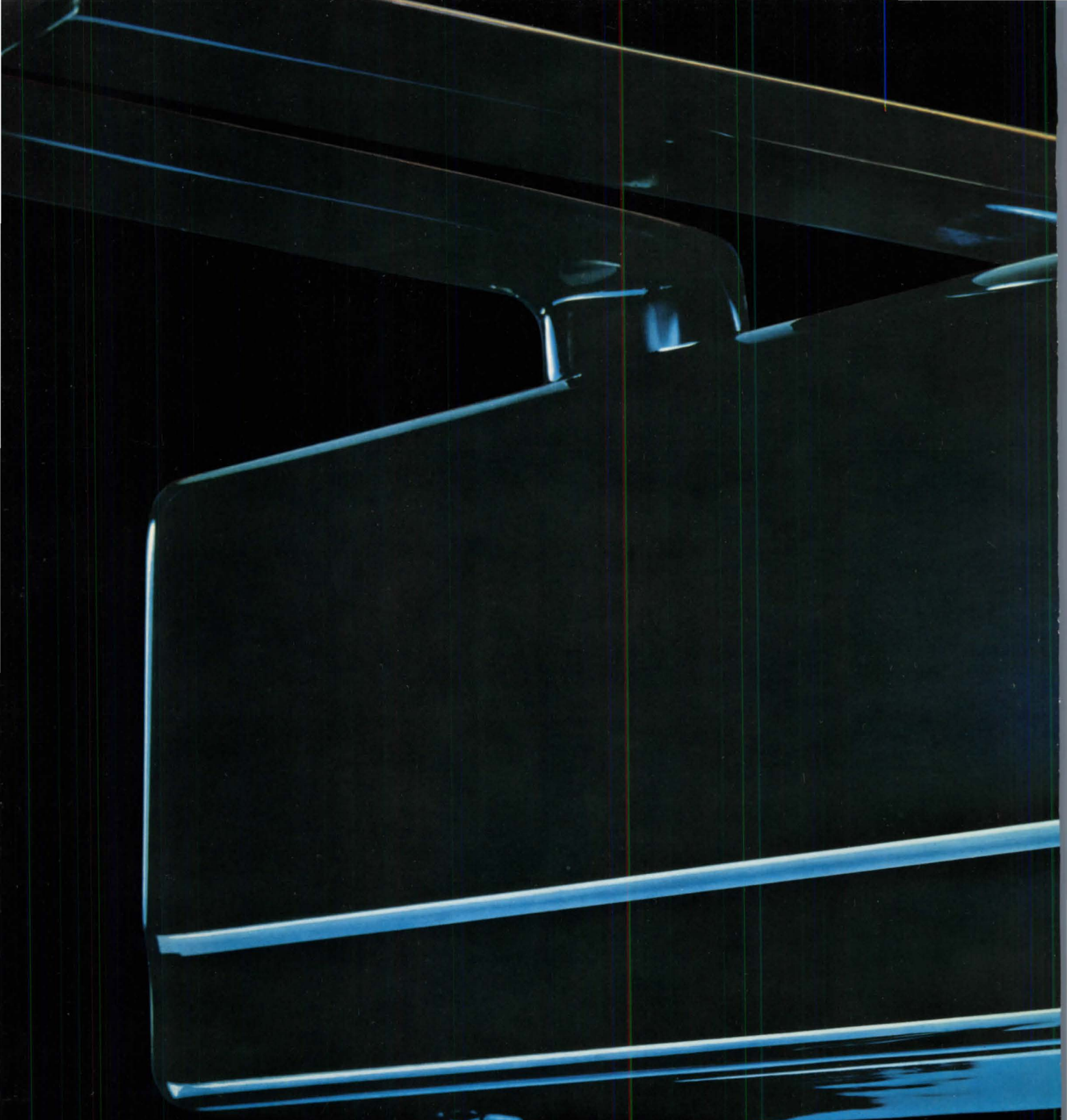
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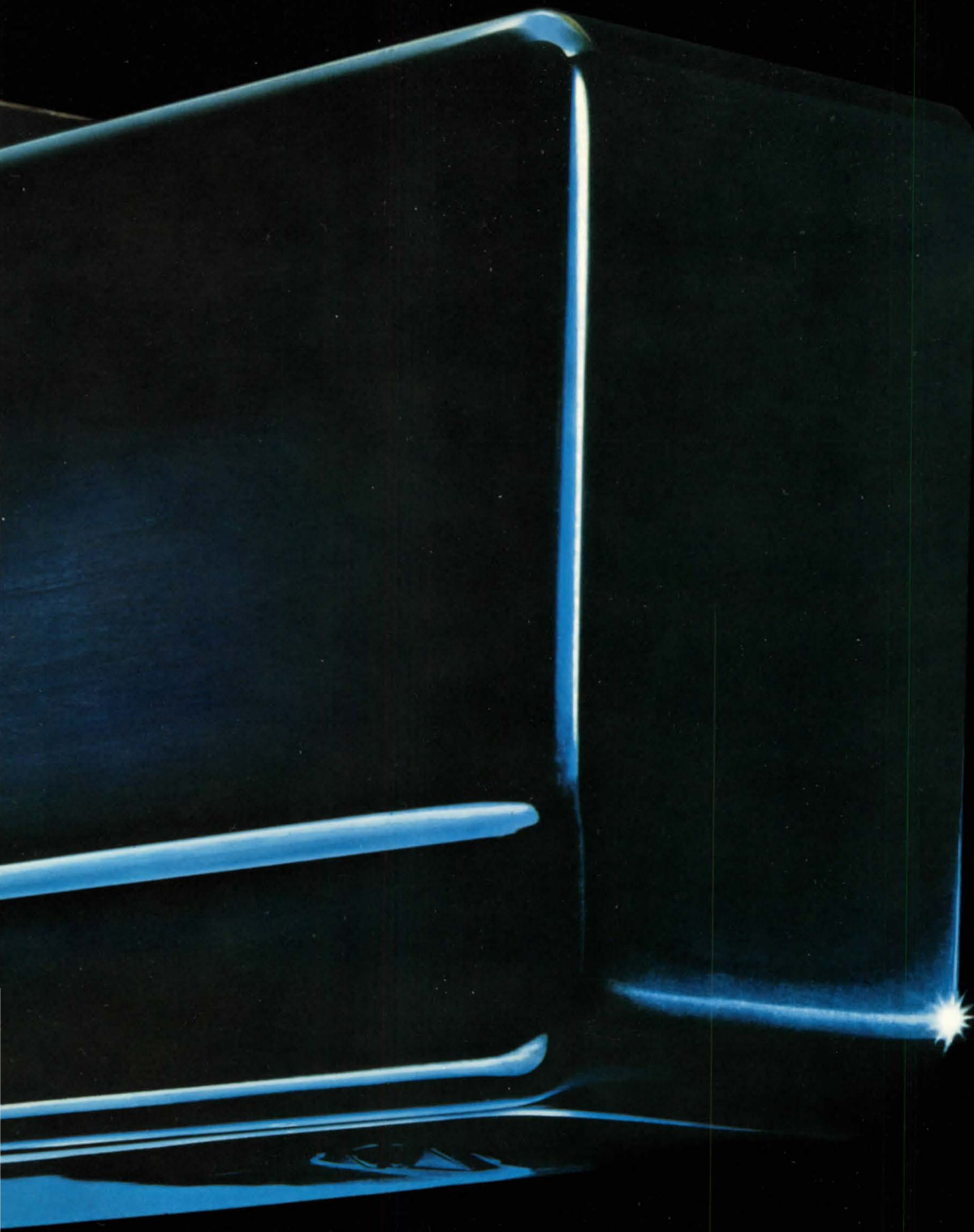
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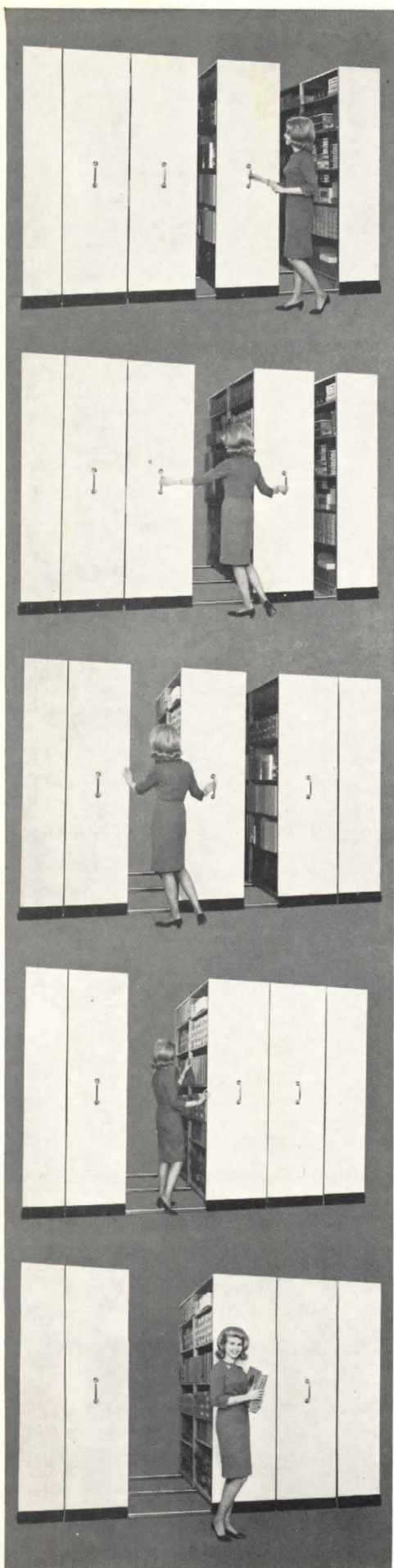
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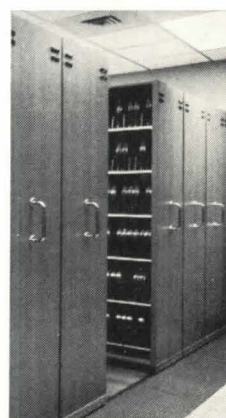
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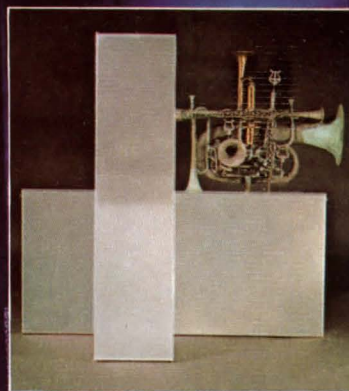
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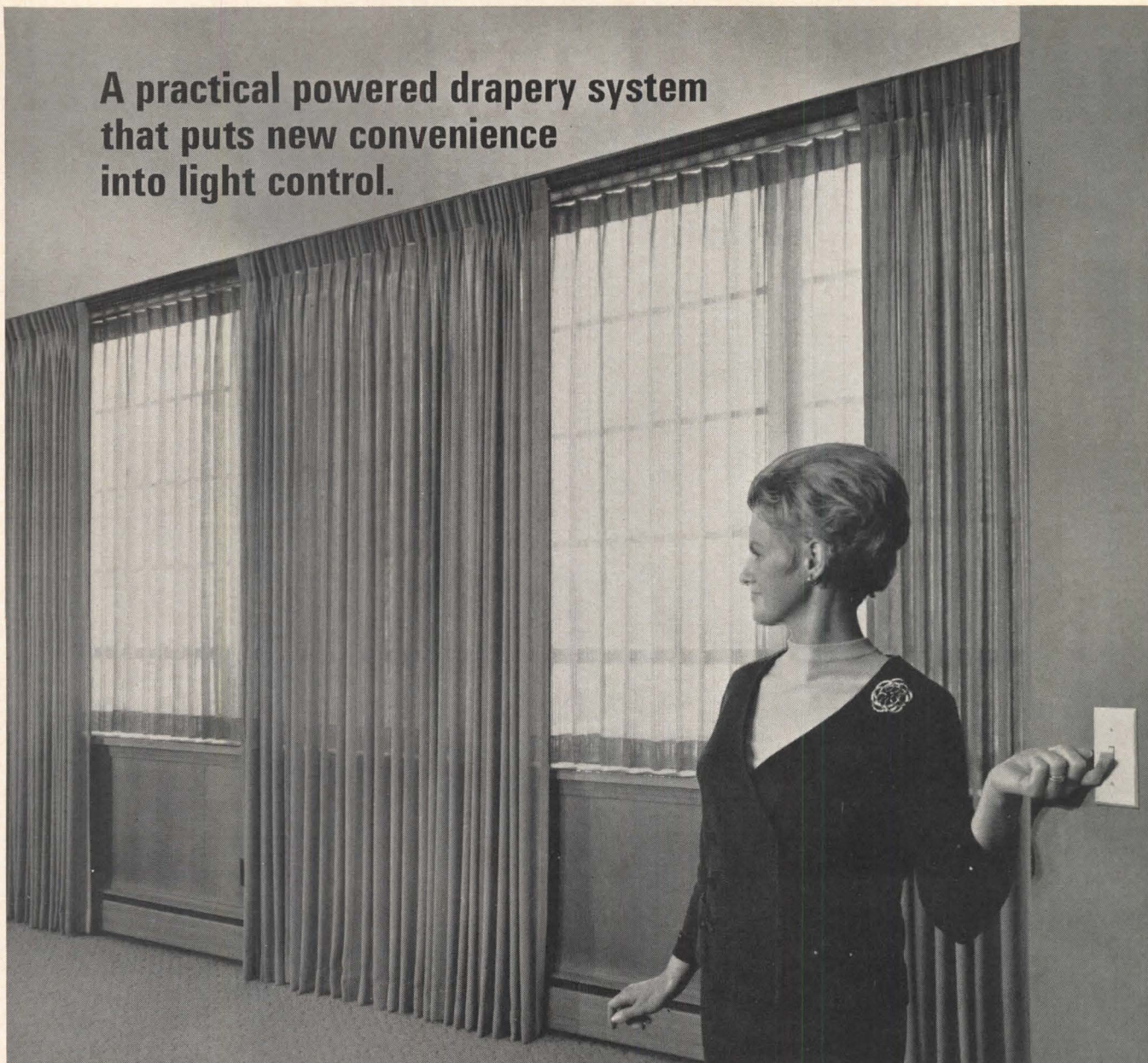


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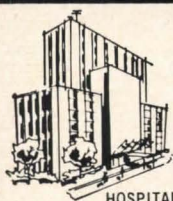
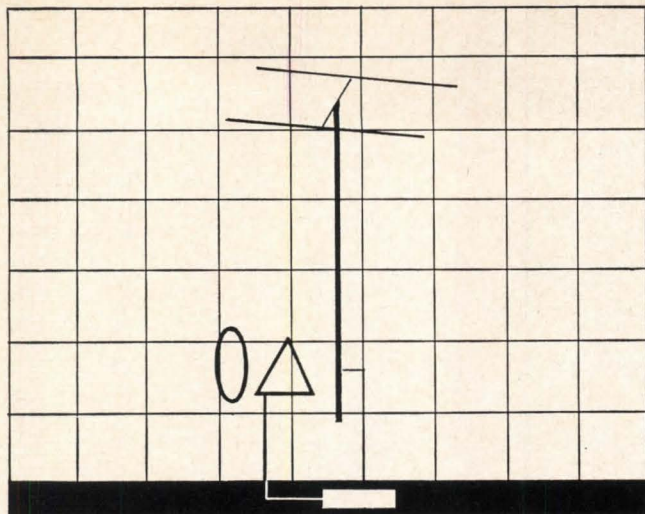
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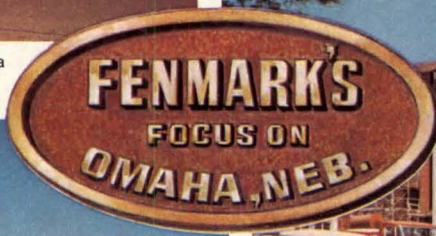
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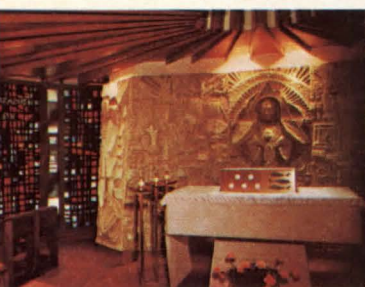
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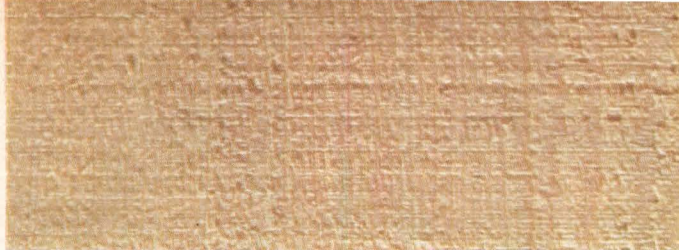
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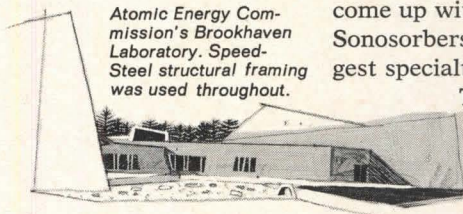


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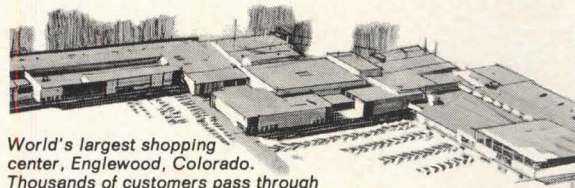
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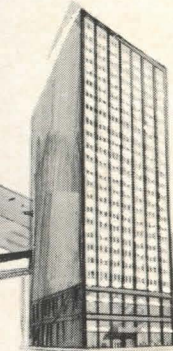
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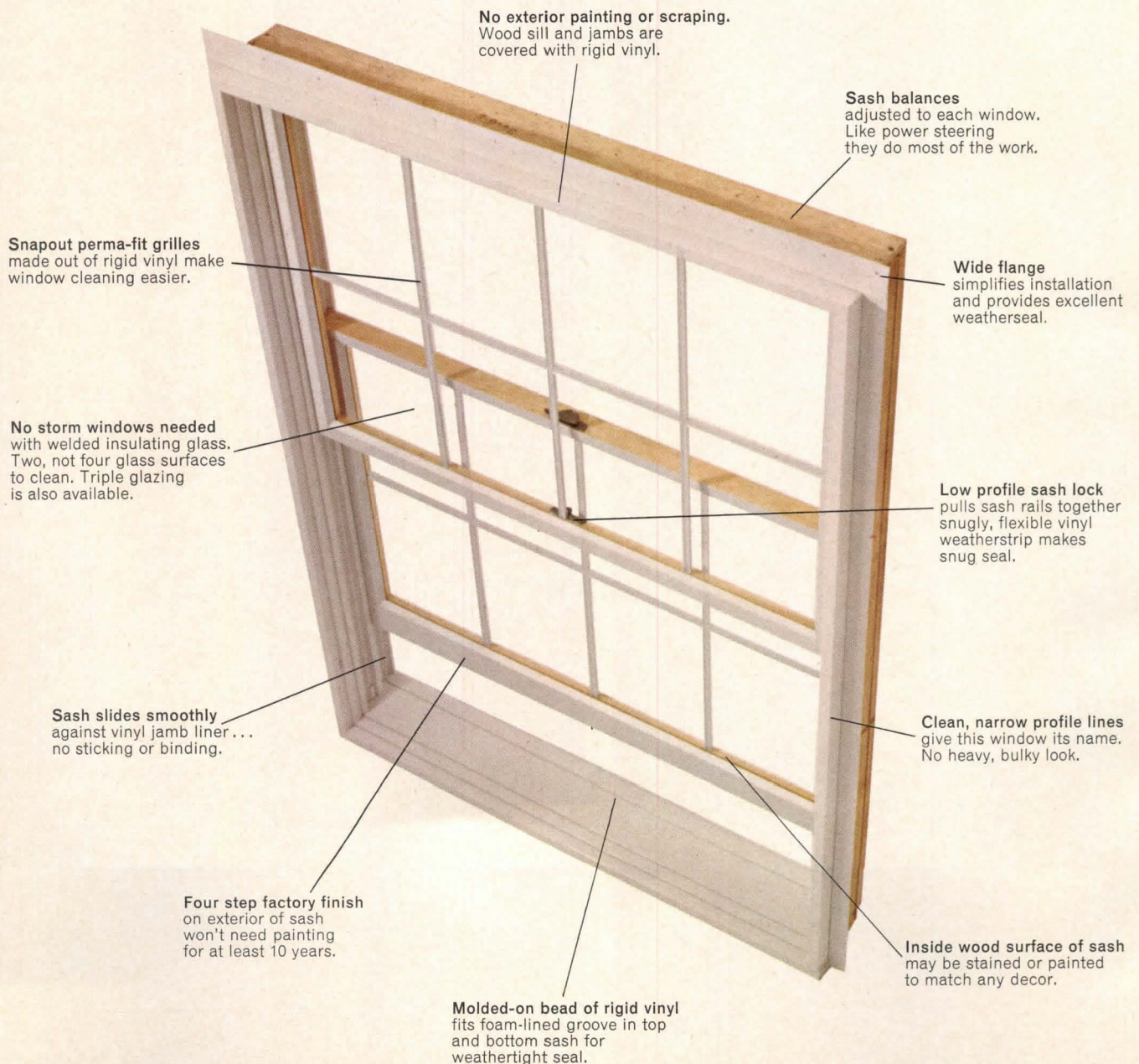
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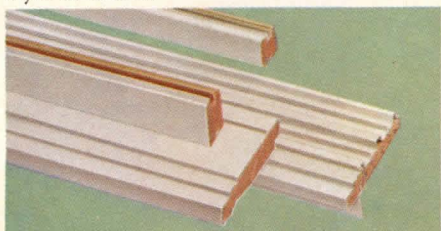
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No exterior painting, no storm windows.

Welded, insulating glass is the most popular glazing option with Perma-Shield Narroline. And with it, owners can look forward to years of easy living—without the back breaking job of changing storm windows, without the usual painting or puttying every 4 or 5 years.

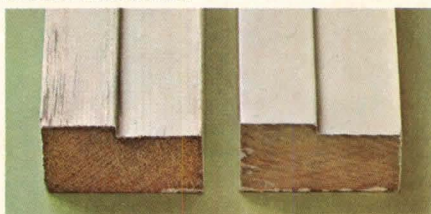
Still, no real cost premium.

As we've said, Perma-Shield Narroline Windows require no exterior on-site finishing. Builders across the country now

*Patents pending



pay up to \$10 per window for a professional painter to put the outside finish coats on an *ordinary* double-hung window. Add the clean-up costs to that, and you know why there's little, if any, additional cost to homebuyers for the low maintenance advantages of Andersen Perma-Shield Narroline.



Exposure tests prove superiority of sash finish. Both samples have been exposed to sun and weather the same length of time, yet look at how the conventional paint at left is cracking and flaking, while the Perma-Shield Narroline finish is still smooth. It still looks good. Still protects the wood.

In the next 5 to 10 years, exterior on-site finishing will become a thing of the past. Keep up with this trend to pre-finished, low-maintenance exteriors with Andersen Perma-Shield Narroline Windows.

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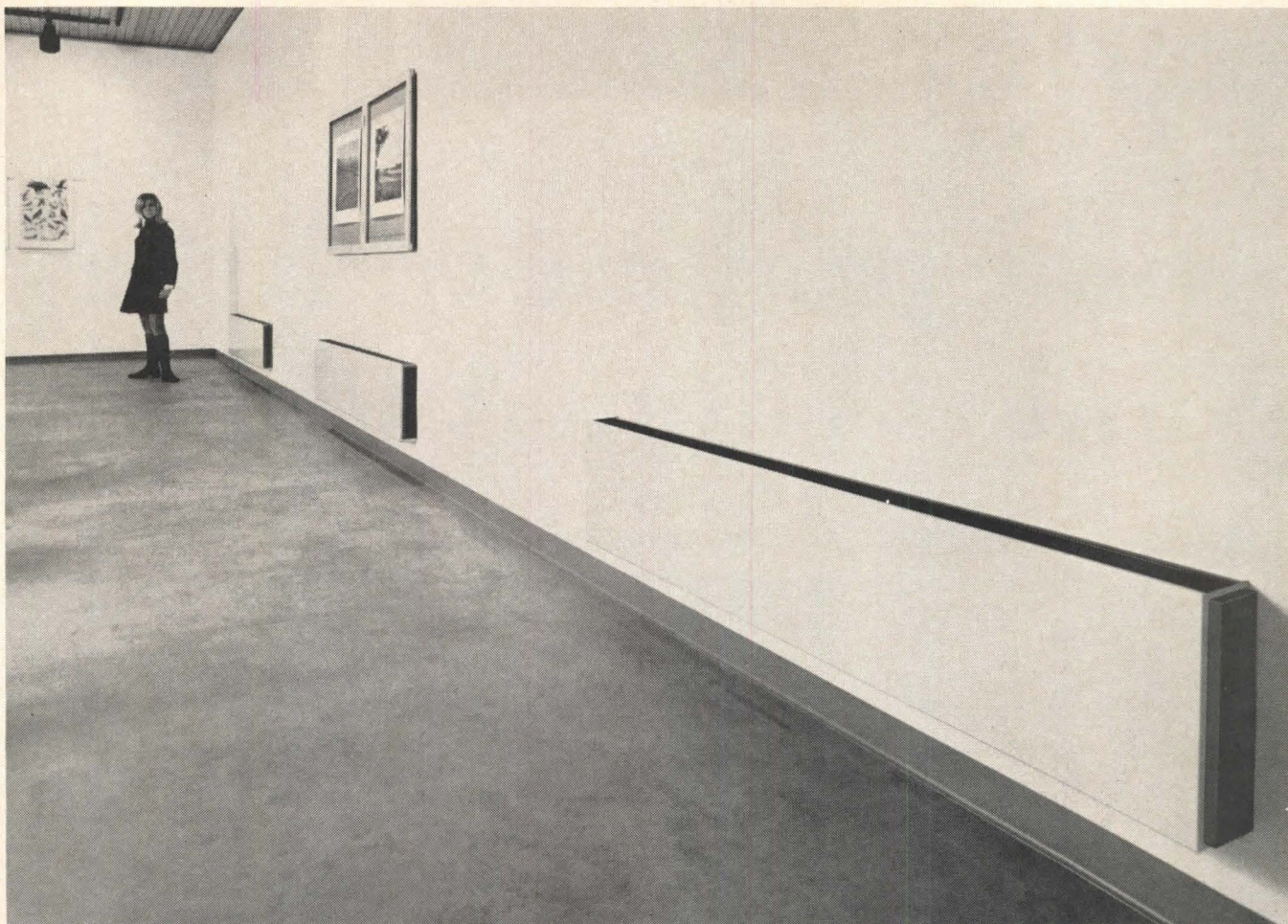
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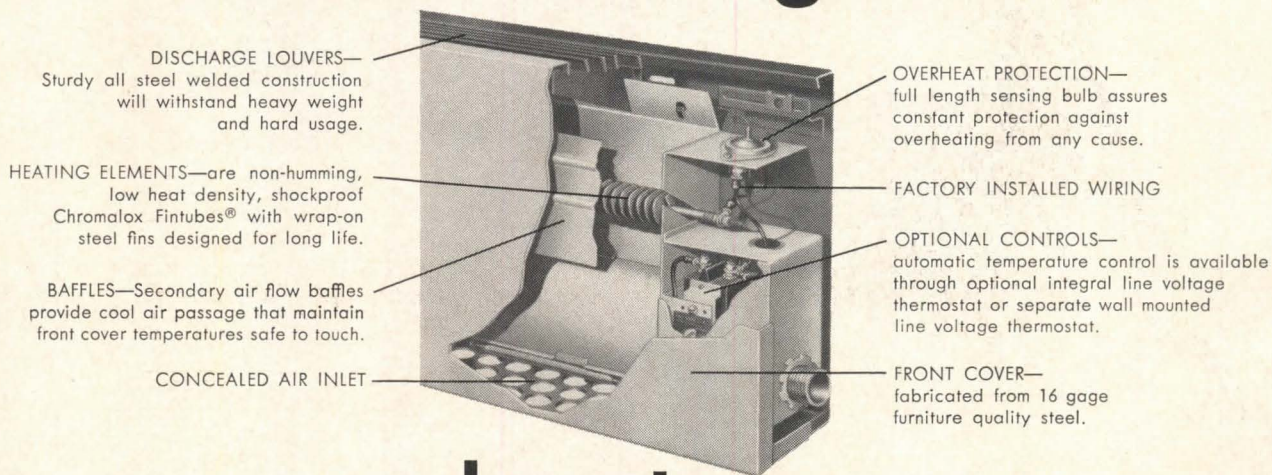
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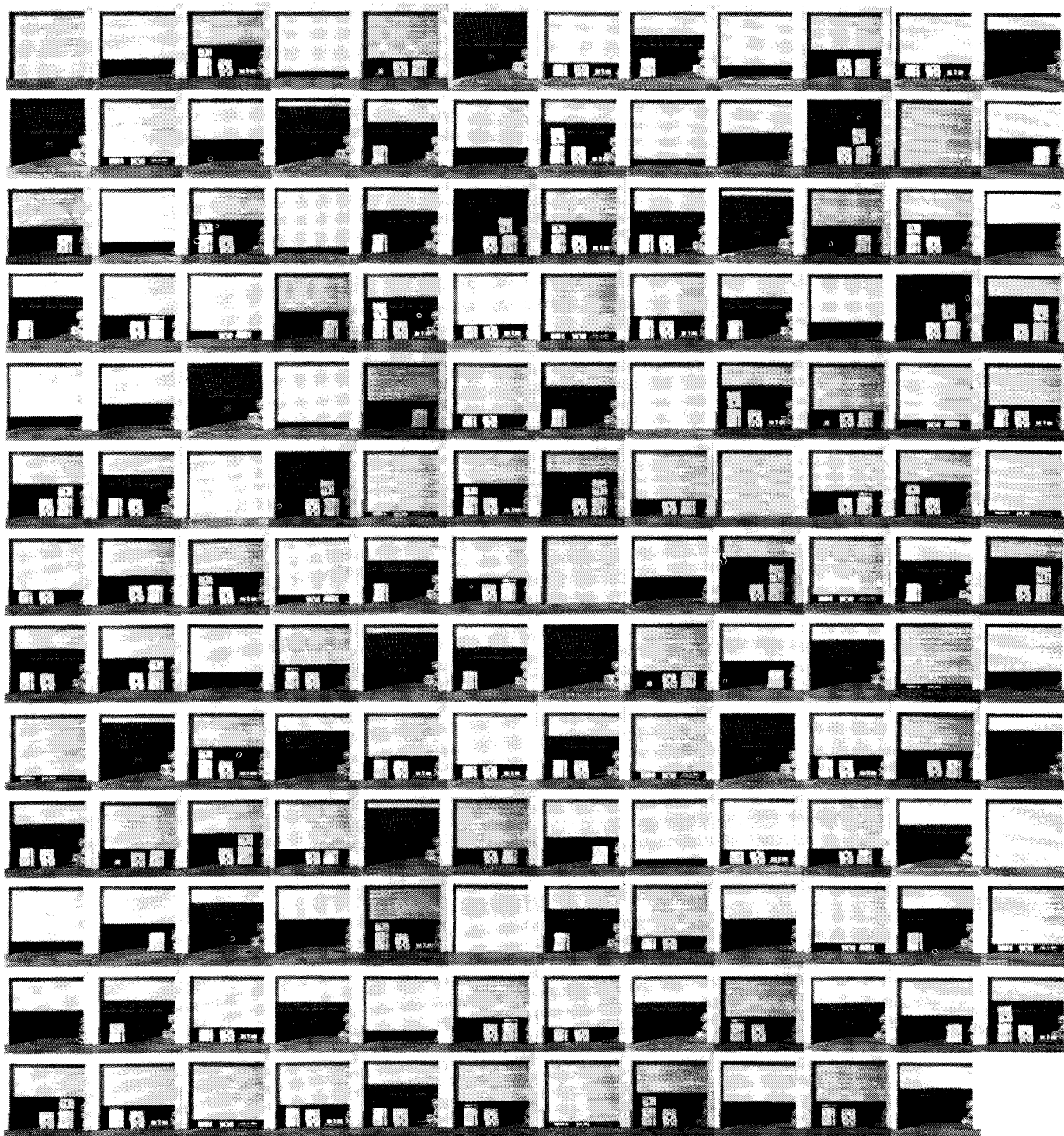
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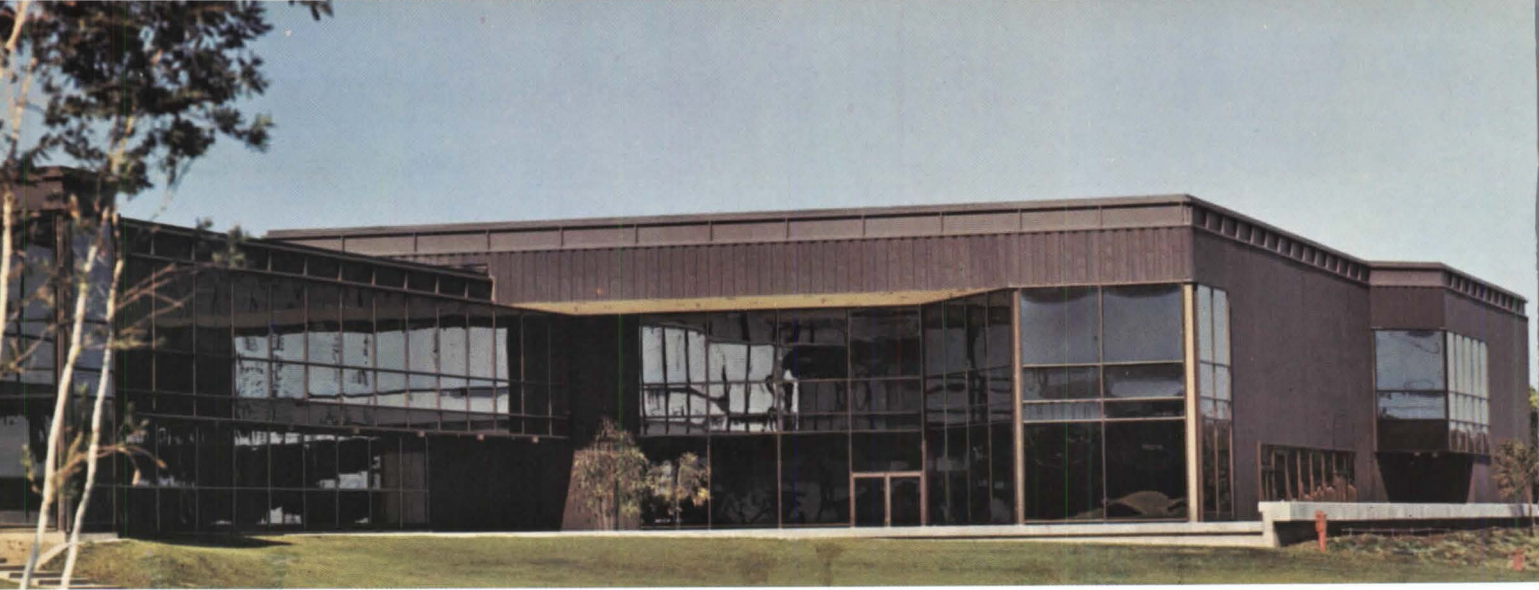
On the basis of quality, operating ease, reliability and cost, the Port of San Francisco's choice of Cookson power-operated rolling steel doors was an open and shut case.



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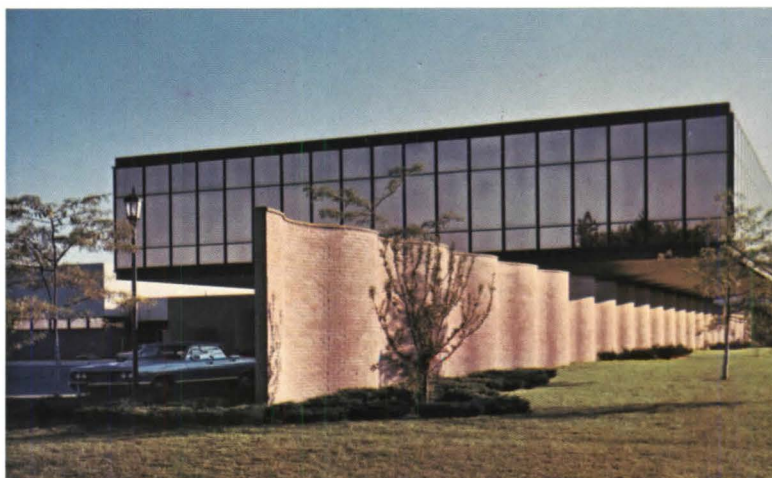
Alcoa Building, San Francisco, California

"Here is a landmark structure which introduces a handsome bracing system to the San Francisco skyline. The structural system produces an interesting facade and provides stability against wind and earthquakes. It is ideal to this geographical location."



C. Thurston Chase Learning Center of Eaglebrook School, Deerfield, Massachusetts

"Steel and masonry are used well together to create a warm environment for learning that maintains the human scale and avoids an institutional feeling."



Ford Automotive Safety Center, Dearborn, Michigan

"The architect effectively used counterpoint to combine the strong discipline of this building with the soft form of a serpentine brick wall which pleasantly extends the building into the landscape. The use of materials is very skillful and very simple. The result is truly twentieth century."

Architectural Awards of Excellence-1968

American Institute of Steel Construction



Superior Oil Company Geophysical Laboratory, Houston, Texas
"Precise, sophisticated details make this an outstanding example of architecturally exposed steel. The fascia is beautifully executed and the building will become increasingly striking as the weathering steel takes on its final color."

C. Thurston Chase Learning Center of Eaglebrook School

Owner: Eaglebrook School, Deerfield, Massachusetts. Architect: The Architects Collaborative Inc., Cambridge, Massachusetts. Structural Engineer: Souza and True, Cambridge, Massachusetts. General Contractor: George B. H. Macomber Company, Allston, Massachusetts. Steel Fabricator: West End Iron Works, Cambridge, Massachusetts.

Manufacturing and Research Facility for Teledyne Systems Company

Owner: Teledyne Systems Company, Northridge, California. Architect and Structural Engineer: Daniel, Mann, Johnson & Mendenhall, Los Angeles, California. General Contractor: Oltmans Construction Company, Monterey Park, California. Steel Fabricator: Riverside Steel Construction, Santa Fe Springs, California.

Ford Automotive Safety Center

Owner: Ford Motor Company, Dearborn, Michigan. Architect and Structural Engineer: Nordstrom-Samson Associates, Dearborn, Michigan. General Contractor: Walter L. Couse & Co., Detroit, Michigan. Steel Fabricator: Freedland Structural Steel Company, Livonia, Michigan.

Alcoa Building

Owner: Golden Gateway Building Company, San Francisco, California. Architect and Structural Engineer: Skidmore, Owings & Merrill, San Francisco, California. General Contractor: Perini Corporation, San Francisco, California. Steel Fabricator: Bethlehem Steel Corporation, Bethlehem, Pennsylvania.

Superior Oil Company Geophysical Laboratory

Owner: The Superior Oil Company, Houston, Texas. Architect: Todd-Tackett-Lacy, Architects & Planning Consultants, Houston, Texas. Structural Engineer: Loudermilk & Loudermilk, Consulting Engineers, Houston, Texas. General Contractor: Pence Construction Corporation, Bellaire, Texas. Steel Fabricators: Mosher Steel Company, Houston, Texas and Berger Iron Works, Inc., Houston, Texas.

Structural steel for all of these award winning structures was furnished by Bethlehem.

Jury of Awards:

Harry C. Adley, AIP, President,
Adley Associates, Inc.,
Urban Planners,
Atlanta

Sam T. Hurst, FAIA, Dean,
School of Architecture and
Fine Arts,
University of Southern
California, Los Angeles

H. Samuel Krusé, FAIA, Director,
AIA Florida Region,
Watson, Deutschmann & Krusé,
Architects and Engineers,
Miami

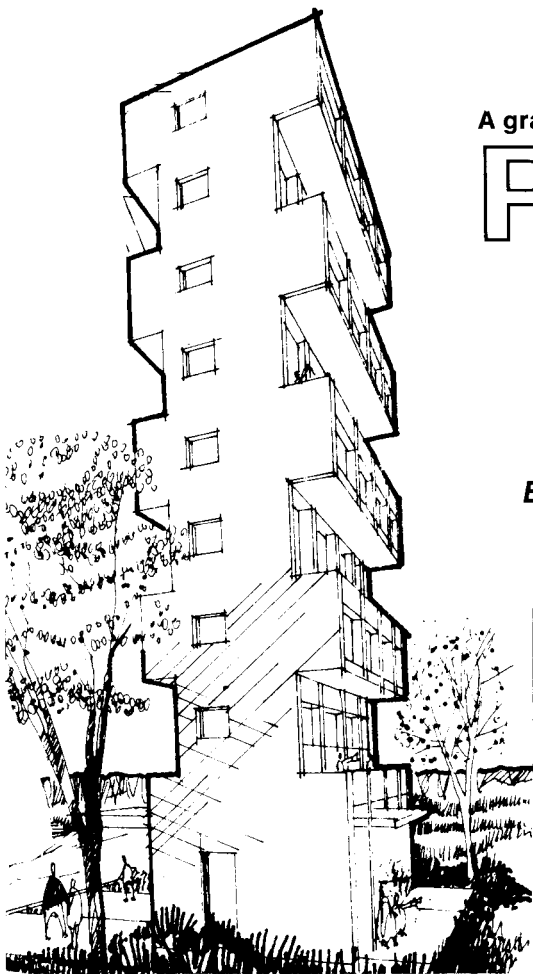
Fred N. Severud, F. ASCE, Partner,
Severud-Perrone-Sturm-Conlin-
Bandel,
Consulting Engineers,
New York

Wayne R. Winsor, AIA, President,
Ellerbe Architects,
St. Paul

BETHLEHEM STEEL

BETHLEHEM STEEL CORPORATION, Bethlehem, Pa.





A graphic reference of current urban design standards

Planning Design Criteria

By Joseph DeChiara and Lee Koppelman

In cooperation with the School of Architecture—Pratt Institute

395 pages
9 x 12
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from the foreword by Olindo Grossi
Dean, School of Architecture Pratt Institute

A graphic reference of current urban design standards

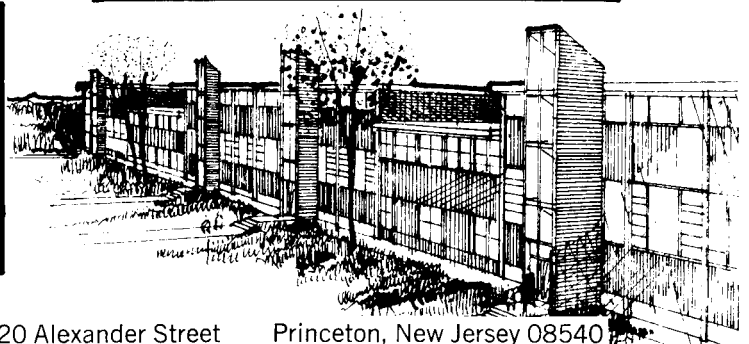
The complexity of contemporary society makes great demands on urban design and planning. In the past several decades practical experience in the field has produced a substantial body of information which is important to our methodology of resolving urban problems. However, until now there has been no summary of this basic reference material needed by the planner and urban designer.

Useful to many professionals

Comprehensive in scope, PLANNING DESIGN CRITERIA is invaluable to professionals in public planning agencies, park departments, housing agencies, and traffic departments. It is also an excellent guide for architects, site engineers, builders, and land developers. The result of extensive research, this volume represents a carefully balanced selection from the vast wealth of available data related to current practices. At the same time it compiles in handy reference format the most appropriate standards that have emerged in the field to date.

Presents essential data and standards

The book gathers into one source a wide variety of practical data and established standards essential to everyone interested in the physical aspects of current urbanization. Divided into nineteen sections, it covers a particular area of interest in each, ranging from neighborhood unit and new town concepts through industrial development and economic base to special government programs.



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P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products

March 1969

P/A UNDER NEW EDITOR

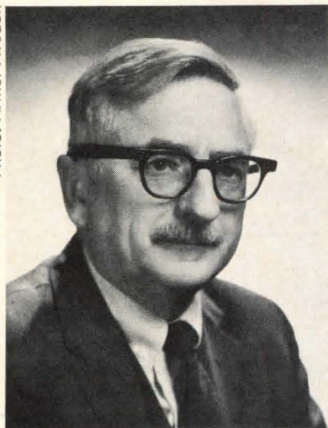


Photo: Arthur Avedon

Jan C. Rowan, Editor of *PROGRESSIVE ARCHITECTURE* for the past five years, resigned in late January to pursue a personal project in environmental communications. With this issue, Forrest Wilson assumes the duties of Editor. An Associate Editor of *P/A* for four years, Wilson brings to the job a broad background in architectural editing, teaching, and construction. Before joining *P/A*, he was Assistant Professor of Interior Design at Pratt Institute, teaching courses in principles of construction, architectural detailing, and mechanical equipment. An accomplished artist, Wilson has also worked as a designer for a major interior design office and as a detailer and field supervisor for firms doing architectural woodwork and general construction.

EXPO '67 CLOSES ITS GATES. BUT WILL IT FOLD ITS TENTS?

MONTREAL, CANADA. Expo '67 has finally faded away. Montreal Mayor Jean Drapeau announced in late January that the fair, which faces severe financial problems, would not reopen in the summer of 1969. Operated last summer as "Man and His World," the exposition had a deficit even after almost all of the Expo '67 participants had donated their pavilions to the city, some with the exhibits

still intact. Last year's deficit reportedly reached \$5 million, as bad weather kept attendance well below hoped-for levels.

What will become of the pavilions is a question no one seems willing to answer at this point. But it seems unlikely that the city alone, without financial help from the provincial or federal governments, can keep this white elephant around as a curiosity piece.

HARLEM ON WHOSE MIND?

NEW YORK, N.Y. One of the most eagerly awaited exhibitions of the 1968-1969 New York season has been the Metropolitan Museum of Art's major show, "Harlem On My Mind: The Cultural Capital of Black America, 1900-1968." It was expected that under the imaginative and energetic leadership of Met Director Thomas P.F. Hoving and the creative control of Allon Schoener, Visual Arts Director of the New York State Council on the Arts, the Harlem show would be a stirring evocation of life and death in the black ghetto. Unfortunately, what was unveiled at the Met was a polite picture gallery of Harlem history with commentary and music spotted along in the background.

Predictably, some of the more militant elements in the black community called for a boycott of the exhibition because of alleged white control of the selection of the material and design of the installation. To us, it seems that those concerned with this show are guilty of a more serious fault: the failure to create — with one of the most powerful subjects and some of the strongest resources available just a few blocks from the museum — environments that would truly cause the viewer to share some of the Harlem experience. Instead of the genteel translation of book techniques (pictures and text) to walls and partitions, how much more compelling would have been

the recreation of actual ghetto conditions — littered vacant lots, storefront churches, crowded tenement stoops, dismal two- and three-family flats — in the pristine atmosphere of the Metropolitan galleries. Instead of slides and voices and music, how much more power there would have been in the actual sounds of the street piped in day by day; the smells of a rancid tenement hall; the texture of filth and raw brick; the fright of the rat seen out of the corner of the eye. This is Harlem life, not the polite, cosmetic version created by the Metropolitan. It is pitiful that in a time when there is so much emphasis on individual and group involvements with urban situations, both actual and "artistic," that a major cultural repository has failed to answer a prime social and environmental challenge. — JTB

BUTTON-DOWN CURTAIN WALL

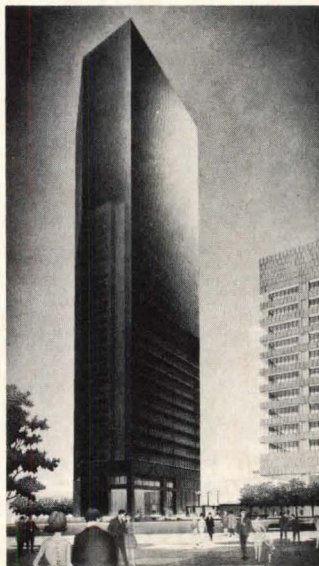


Photo: George Csarna

BALTIMORE, MD. A sheer, six-sided, 23-story office tower, sheathed in glass, won an architectural competition here. Designed by the Baltimore firm of Rogers, Taliaferro, Kostitsky, Lamb, the \$10-million building will rise in Charles Center, Baltimore's 33-acre urban renewal project. Designer George E. Kostitsky plans to encase the building, which rises from a

three-story granite base, in solar gray laminated glass, fastened to interior steel plates (invisible from the outside) by rows of faceted stainless-steel buttons; these will relate to details in a nearby building. Both the rows of buttons and the building's irregular shape will contribute to what one jury member called its elegance. According to one spokesman, "The building form and its plaza have been developed to respond to the circulation flows of the existing public spaces in Charles Center and the new Inner Harbor development."

Acting as jury for the competition was the Architectural Review Board: Pietro Beluschi, G. Holmes Perkins, dean of the Graduate School of Fine Arts at the University of Pennsylvania; and David A. Wallace, professor of city planning at the University of Pennsylvania and partner in the architectural and planning firm Wallace, McHarg, Roberts & Todd.

COLUMBIA CONTINUES ITS BUILDING BOOM

NEW YORK, N.Y. When, a few months ago, Columbia University announced the retention of I.M. Pei & Partners to prepare a master plan for all future development of the university, it was already aware that some sorely needed facilities would have to be built before the plan was complete. Now, the university has announced that Gordon Bunshaft and William S. Brown of Skidmore, Owings & Merrill have been commissioned to design a complex of buildings for the sciences. SOM will work closely with Pei's office to coordinate the new structures with plans for long-range future development.

Construction of the new science buildings will be confined to an area east of Broadway and south of 120th Street, within the present boundaries of Columbia's campus. Announcing SOM's commission, Andrew Cordier, acting president of Co-



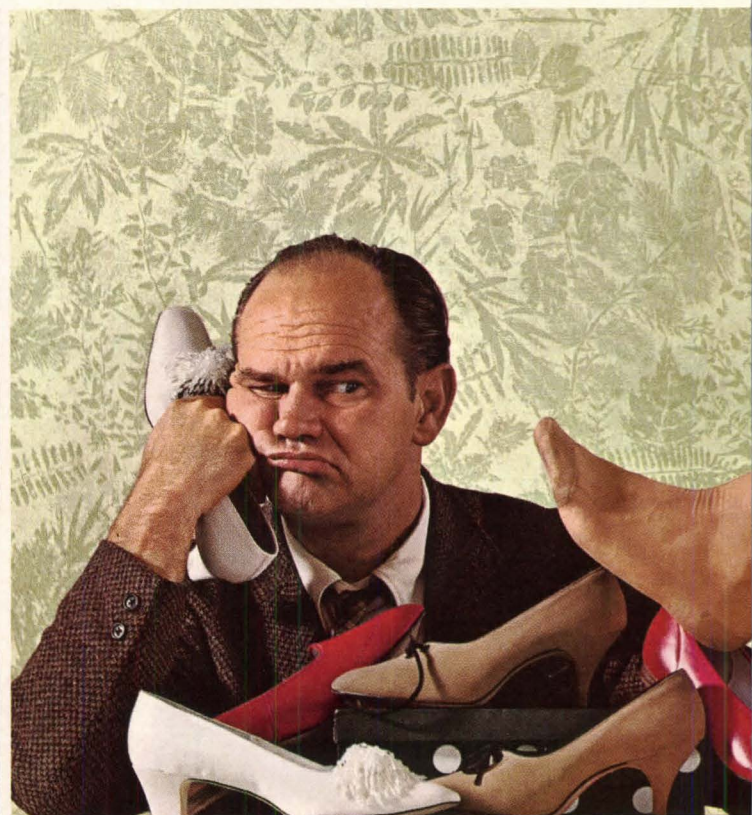
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lumbia, was careful to emphasize the university's new policy of intensive use of land it now owns, to avoid disruption of the surrounding community.

Although no details of the plan have been announced, Cordier indicated that the first structure to rise will house research and teaching facilities for Columbia's rapidly expanding biological science programs.

ENVIRONMENTAL ACTION GROUP



Udall.

An organization that will concern itself with wide-ranging projects of environmental planning has been formed with headquarters in Washington, D.C. Its name is The Overview Group and it is headed by former Secretary of the Interior Stewart L. Udall as Chairman of the Board; landscape architect and planner Lawrence Halprin as Chairman of the Executive Committee; and Henry L. Kimelman, formerly Assistant to the Secretary of the Interior and Commissioner of the U. S. Virgin Islands, as President and Treasurer. The Group will also include Henry S. Bloomgarden, former Special Assistant to Secretary Udall, as Vice-President, and Mrs. Sharon F. Francis, who was Mrs. Johnson's Assistant for Beautification and Conservation, as Secretary. The affiliation of more Overview members will be announced in the near future.

At an introductory press conference last month, Udall, Halprin, and Kimelman described the new venture as one that will take an over-all,

interdisciplinary approach to the solution of problems of life in both urban and non-urban places. Noting the present, fragmented attitude in dealing with design and control of the environment, Udall stated that Overview will strive for an integrated means of involving all appropriate professions in the design and planning of regional and nationwide systems. As backup for the main Overview staff, a group of more than 25 Principal Advisors will be associated for the study and implementation of various projects. Presently in formation, the advisory group



Halprin.



Kimelman.

already contains such notable figures as I.M. Pei; Edmund N. Bacon; Moshe Safdie; Kenzo Tange; Charles M. Haar, Professor of Law at Harvard and Assistant Secretary for Metropolitan Development at HUD; Robert C. Wood, Director of the Joint Center for Urban Studies at Harvard-MIT; William M. Roth, Fellow, Institute of Political Studies, John F. Kennedy School of Government, Harvard; and Teodoro Moscoso of Puerto Rico, Chair-

man of the Board, Commonwealth Oil and Refining Co., and former U. S. Coordinator of the Alliance for Progress. Each advisor will continue his own professional activities, and serve Overview as reviewer of proposed projects and as director of particular projects. Udall and Halprin also will continue their private practices as attorney and urban designer-landscape architect, respectively.

The former Interior Secretary emphasized that the aim of Overview is not simply to make studies and master plans that then "go on the shelves of planning commissions, never to be seen again." The Group will involve itself in all aspects of each project — design, planning, political, economic, sociological, ecological — and commit itself to follow-through in all areas of all commissions. Halprin stated that the ecological and sociological elements of all projects will be carefully studied in order to prevent physical and emotional disruption of the environment and the people in it. Both men stated that Overview will seek new talent wherever it shows itself and, in the case of foreign commissions, will attempt to train design, planning, and construction talent in emerging nations, thereby enriching the cultural and social aspects of those countries.

A projected service of Overview is *Agenda for Tomorrow*, a publication dealing with problems of the world environment and emphasizing objective analysis of successful solutions, new developments, governmental matters, notable ideas, significant new plans and designs, and forward-looking proposals. *Agenda for Tomorrow* is expected to be supplemented in the future by other forms of communication — including seminars and film and television presentations — to a top-level audience of government officials, industrialists, and environmental authorities.

AIA NAMES '69 MEDALISTS

WASHINGTON, D.C. Early last month, the AIA announced winners of 1969 medals in special categories.

Architect Carl Koch, principal in the Boston firm of Carl Koch & Associates, will receive the Industrial Arts Medal when the AIA convenes for its Annual Convention next June. Koch was cited for his efforts to "incorporate prefabricated building materials into his designs with variety and imagination."

In awarding the 1969 Citation of an Organization to the New York State University Construction Fund, the AIA said that the Fund "had judiciously selected from the finest architectural talent in the United States the architects to design and develop the campuses of the State University of New York. In its quest for excellence, it did not limit itself only to architects from the State of New York. This . . . procedure has produced a distinctive and consistent high quality . . . throughout the entire system."



This year's recipient of the Architectural Critic's Medal is Ada Louise Huxtable (see photo), architecture critic of *The New York Times* and former contributing editor of *P/A*. The award is given each year in recognition of a distinguished career devoted to architectural criticism.

Winners of additional medals are: Jones & Emmons, Los Angeles, Calif., The Architectural Firm Award; Jacques Lipchitz, Fine Arts Medal; Philip J. Meathe, formerly of Meathe, Kessler & Associates and now of Smith, Hinchman & Grylls, The Edward C. Kemper Award; Julius Shulman, The Architectural Photography Medal; Henry Easterwood, The Craftsmanship Medal; John Skilling, of Skilling Helle Christiansen Robertson, Engineers, The Allied Professions Medal.

ALLEY OPENS ON THE PLAZA

Photo: Ezra Stoller



HOUSTON, TEX. The Alley Theatre has grown from humble childhood to grandiose maturity. Architect Ulrich Franzen's recently opened theatre (see p. 49, SEPTEMBER 1965 P/A) for producer-director Nina Vance completes a third wall on Houston's new Civic Center Plaza—a sloping park with an underground garage, flanked on one side by a colonnaded convention hall and on the other by Caudill Rowlett Scott's colonnaded Jesse Jones Hall. The Alley Theatre is sited, imperfectly, on the downhill side of the quadrangle, rather than on the western crown, which may one day have a taller block that will shield the sun, as the lower theatre will not do.

The building's exterior is a robust, turreted sculpture of concave and convex walls, segmental terraces, and staggered voids that has the air of a fantasy castle in sandblasted concrete. It appropriately sets the stage for theatre. Fulfill-

ing architect Franzen's hope, the building does indeed "release feelings" of visitors. As a romantic fortress, it is also the most imposing, handsome, and architecturally acceptable of all the major regional theatres built in the last decade.

Inside, the lobby ticket office has battered walls that carry forward the bastion-like image of the exterior. Up from that level, a staircase carries the juxtaposed curves of red-orange carpet, white plaster, and laminated oak sculpted handrail up to a platform, intended for a sculpture, and to the upper lobby level. At present, instead of the sculpture, the Alley can afford only a grand piano, which is used for cocktail-like music before performances begin.

The auditorium itself (see p. 172-73, OCTOBER 1965 P/A), holding 798 seats, is fan-shaped, not quite semicircular, with bold caliper stages raked from the audience rear wall to the open-thrust stage;

it has deep gray walls, continuous orange carpet, and antique copper plush upholstery (which does not work so well with the carpet as the oak handrails do in the lobby). It is an immediately appealing space. Its open stage, with 17 entrances, is flanked by boxlike, door-height side stages, entered from the wings and from the calipers, and they add considerable flexibility to the staging. These permanent side structures may prove too strong, too personal, to be desirable for every production; ultimately, more physically alterable units may be desired to give the hall more anonymity. Sliding panels that run on tracks overhead in the grid (which covers the open stage 20' above it), backstage close-off panels, traps, two stage elevators, a steel mesh walkway over the grid through which lighting can be projected without shadows, and an analogue light control system (not yet completely installed) are the contributions of George Izenour in consultation with Nina Vance and the architect.

The acoustics, by Bolt, Be-

naneck & Newman, are excellent. Back in the lobby at intermission time, during the opening night performance of Bertolt Brecht's impressive drama *Galileo*, the Texas company never stopped moving: Instead of permitting audience conversation to rise, a trumpet voluntary is broadcast over the amplification system for a procession of several resplendent banners by artist Robert Indiana in red, orange, and yellow. At the play's end, departure is slowed by the long, winding staircase that is the principally remembered entry, and by the usual jam at elevators.

A small, 298-seat arena stage downstairs in the building handsomely recreates the stage of the company's former home, and displays an exemplary grid for a theatre-in-the-round. Backstage and administrative facilities are bright, spacious, and appealing.

Houston can be proud. The new Alley Theatre is a handsome urban addition, a pride of "regional" (non-New York) theatre, and a paradigm of good theatre design. Nina Vance and Ulrich Franzen can also be proud. — CRS

PROTECTING THE AGED

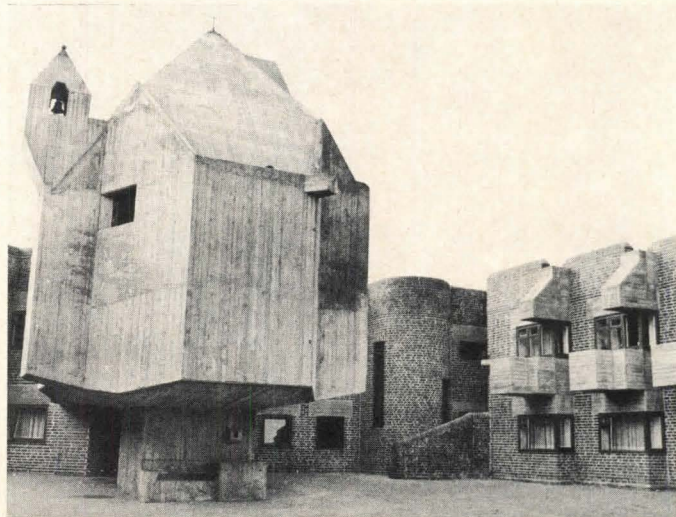
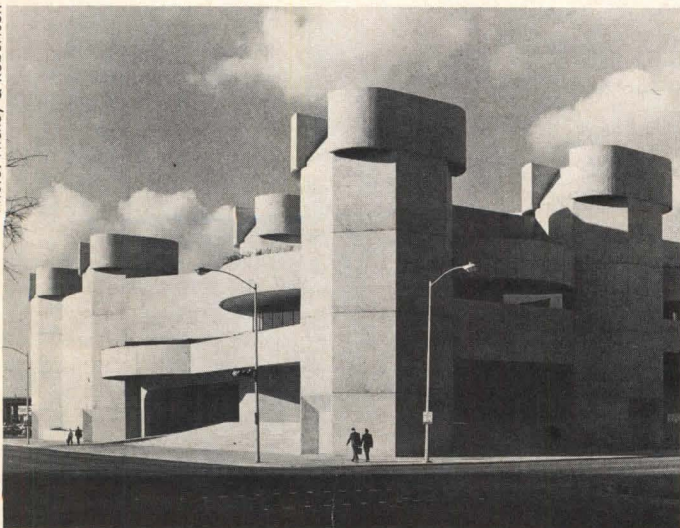


Photo: Pictorial Parade

DUSSELDORF-GARTH, WEST GERMANY. If medieval fortresses had had picture windows, they might have looked something like this. One can even envision Rapunzel letting down her hair from one of those balconies. This particular fortress is a home for the aged, accommodating 105 persons in single rooms and in suites with kitchens, and, in some cases, small gardens.

The slablike, sharp-edged surfaces of the raised chapel (left in photo), with the vertical lines of the board forms left in the concrete, contrast sharply with the horizontal lines of the brickwork and with the curved towers and stairwells. Concrete balconies balance and reiterate the texture of the chapel. Architect of the structure is Professor Bohn of Cologne.

Photo: Hickey & Robertson



EXOTIC PLAN FOR A PERSIAN ISLE



TEHRAN, IRAN. William Wesley Peters, chief architect of Taliesin Associated Architects, flew to Iran's capital early last month to sign a contract with the Imperial Government for development of a master plan for the Island of Minoo. The architect, who recently presented plans for a new palace to the Shah's sister, seems to be developing a comfortable working relationship with the Shah and his ministers, and, in the process, is creating a good deal of respect for American technology and imagination.

The present project involves an island in that part of the Euphrates River which runs into Iran at the top of the Persian Gulf, near the oil city of Abadan. Minoo is within a 60-mile radius of the historic sites of Shiraz, Persepolis, and Isfahan in Iran, and the remains of ancient Sumeria, Babylon, Ur, and Ctesiphon in Iraq. Development of the island will probably consist primarily of luxury resort facilities designed to attract

vacationers from the Middle East and Europe who presently spend their leisure time (and money) in European or Mediterranean resorts.

Because of the extremes of climate of Minoo — the heat and humidity — the architects propose a series of enclosed, air-conditioned megastructures, each in turn consisting of a group of buildings. The megastructures themselves would be connected by straight or spiral ramps. Beneath the ramps, space would be available for various building purposes, such as stores, restaurants, and parking. The exotic names of "Ramp of Shapur" and "Ramp of Adashir" are suggested for the two major spiral ramps, which will serve as highways.

In the northern portion of the island, and bounded by the river and three ramps, the planners propose construction of the "Court of Rustam," where a great sports arena with a translucent roof would contain tracks and

playing fields for all types of sports and athletics, including horse and camel racing. (The name is a literary allusion to the ancient epic in which a father and son, representing two opposing armies, fight to the death in single combat.)

Southern and western shores of the island would be developed for residential use, providing single, group, or apartment facilities. Design of the dwellings would be leased on a variation of the ancient garden court plan of Persian villages.

The easternmost portion of the island, landscaped as a great terraced plaza, would hold additional apartments and hotels, as well as casinos, nightclubs, restaurants, and swimming pools. This area is designated "The Plaza of Khayam."

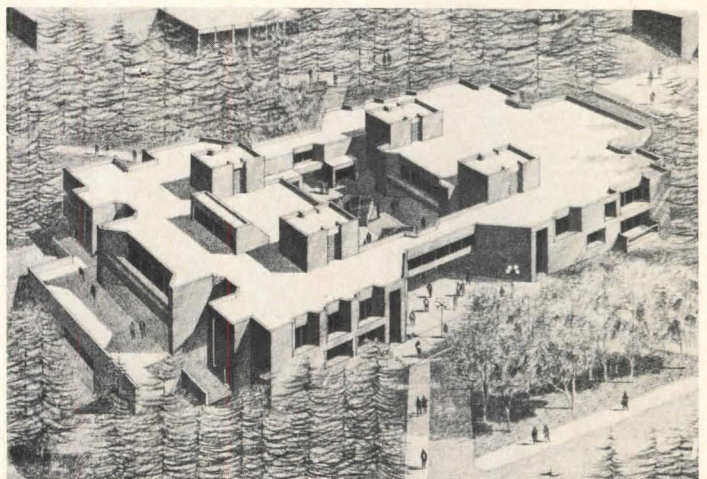
For transients, the centrally located resort area and hotel-motel complex could offer lodgings to 3000 guests. It is conceived as a series of

terraced rooms opening outward toward views of the river, and inward toward a central garden court.

Additional facilities will include libraries, schools, chapels, mosques, a zoological garden, and an amusement park ("The Garden of Scheharazade"). In addition, there would be a number of buildings for the performing arts, such as music, theater, and the dance. And the crown of cultural development on the Island of Minoo will doubtless be the proposed university, The International University for the Promotion of Peace. A very good idea, we think. Our only fear is that the next Arab-Israeli confrontation may slow its construction.

The proposed developments are expected to cost the Ministry of the Interior approximately \$18,450,000 over the next three years, and, if all recommendations are followed, a total of \$977 million over more than 15 years.

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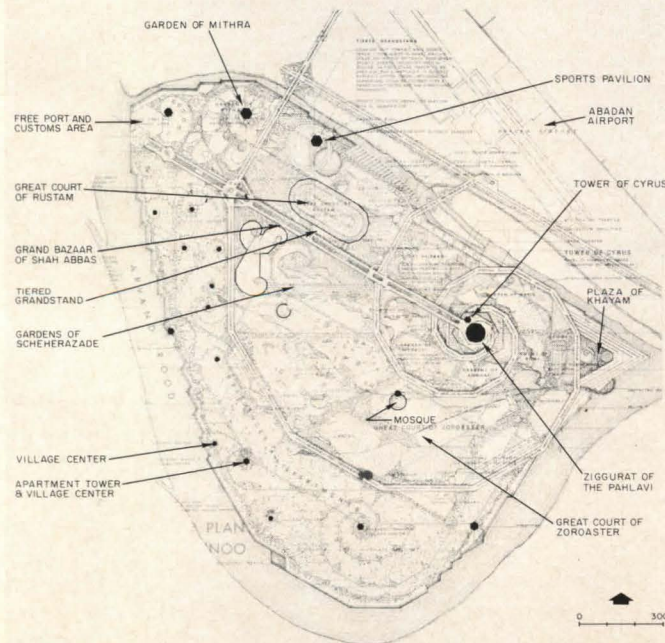


WALTHAM, MASS. Renderings of Brandeis University's new Usdan student union show a structure that is fortress-like in both form and plan. Deeply recessed windows with jambs slanted at a 45° angle emphasize the somewhat forbidding forms of the face-brick façades and create notches that lend the entire building something of the flavor and fascination of a medieval castle.

Once a visitor has located the wide-angled entranceway, passed under an elevated corridor, and arrived at an inner open courtyard — an adventure that may call to mind Jonah's experience with the

whale — the atmosphere becomes somewhat more inviting, although the building's forms are no less complex from an "interior" vantage point. Access to the various parts of the structure is through doors opening onto the court, whose walls are almost fully glazed.

Inside, four distinct areas with their connecting elements serve to zone different types of activities. Each area has its own stair and elevator tower; from the outside, these elements are reminiscent of watchtowers. Within the five activity areas, labelled Academic Administration, Central Facilities, Student Activities,



Student Organizations, and Social Recreation, there will be space for an FM radio station, library, mail room, lounges, billiard tables, a bookstore, bowling alley, and photo labs. The cafeteria will accommodate 390 students; a combination ballroom and banquet hall will seat approximately 680.

Like some other structures of recent vintage (the Boston City Hall, for example), the Usdan Student Union is intended as a center of activity for the entire surrounding community, a center that blends in scale and form with its physical surroundings. Yet it looks like nothing so much as a fortress, very much on the defensive.

We worry about the fate of

those who will occupy the offices of academic administration in the building, should a "confrontation" between students and administration occur on campus. We picture the battle of the courtyard, and then, when the vastly outnumbered administrators have been driven from the fort, students stalking the battlements and manning the watchtowers. If they succeed in taking this building, they will be in a very secure position.

Construction of the Usdan Student Union was begun on October 1 of last year and should be completed by the summer of 1970. The structure was designed by Hugh Stubbins & Associates and is expected to cost \$4,100,000.

BLOCKBUSTER WINS COMPETITION FOR AMSTERDAM CITY HALL

Photo: Dienst Publieke Werken

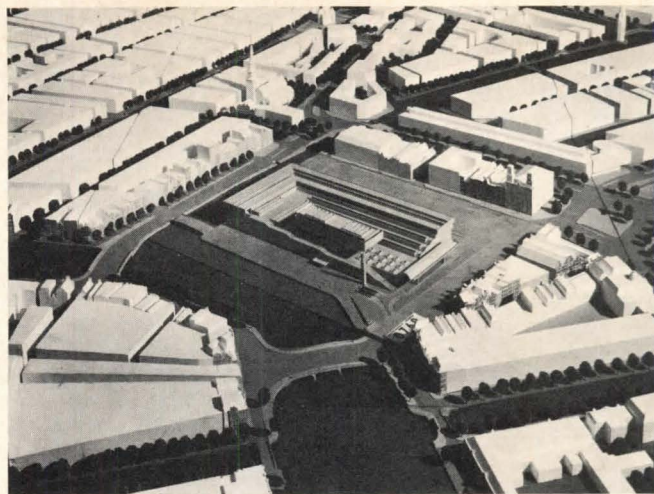


AMSTERDAM, THE NETHERLANDS. Amsterdam is one of the most beautiful cities in the world. Laced with canals, dotted with open squares and tree-lined boulevards, it is a city of constantly changing vistas, quiet dignity, and color. Much of its architecture dates from the 17th and 18th Centuries, and city laws wisely protect this heritage. It is a city whose scale and proportions are unselfconsciously correct.

In a move which therefore seems as strange as it is questionable, the city authorized a competition for the design of a city hall that will cover six Amsterdam city blocks on the banks of the Amstel River. To accommodate the new structure, all buildings in the area will have to be razed, some of which are architecturally



turally distinctive (but not protected by law) and all of which are in keeping with the charm of the city. They will be destroyed to make way for a structure, which, in scale alone, will effectively ruin that charm.



Winner of the competition is a Viennese architect, Wilhelm Holzbauer, who, in his choice of a brown brick for the façade, has tried to make the structure sympathetic to the architecture of Amsterdam. Unfortunately, it is not enough. Holzbauer's structure, taken by itself, is indeed handsome, attractive enough so that people might say, "Let's meet at the City Hall." Unfortunately, it cannot stand alone.

The building will have several galleries with staircases winding through them. And it will have benches so that people will come inside and linger. "Everything" he explains, "will be in the colors of Rembrandt, in the colors of the real Amsterdam. A person cannot live without romance."

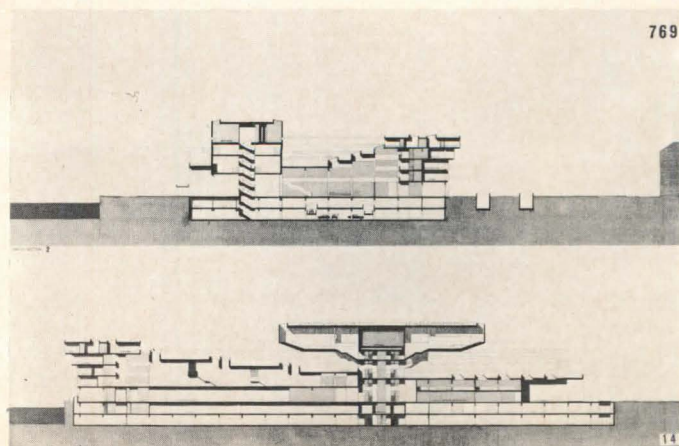
Holzbauer's design was chosen from among 803 entries in the international competition by a jury of five architects: Sir Robert H. Matthew of England; Professor J. Schader of Switzerland; and F.J. van Gool, H.A. Masskant and P. Zanstra of the Nether-

lands. Their nonvoting adviser was C. Nielsen, the Amsterdam city architect.

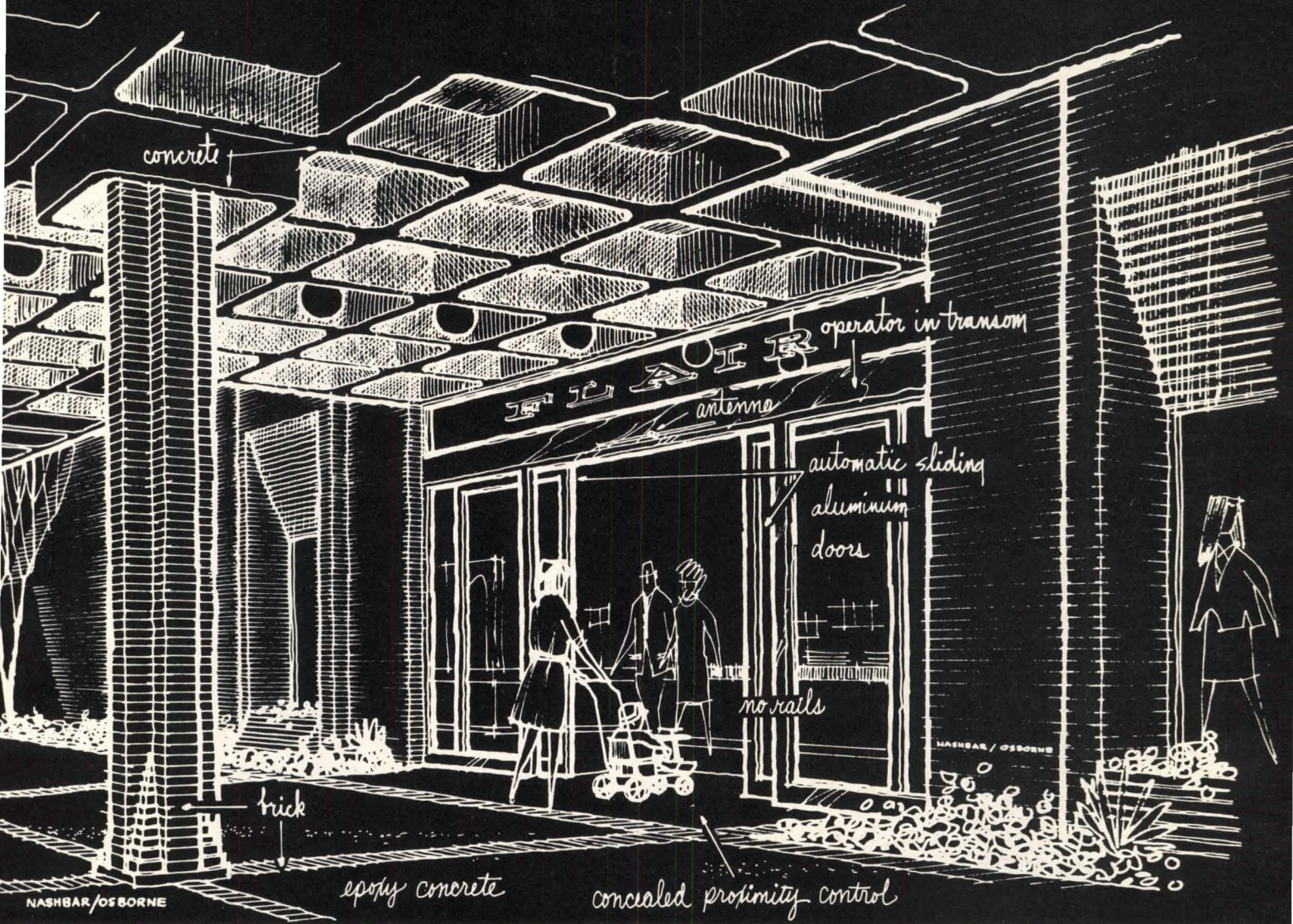
Already, even before the city council has voted on what will become of the plan, the Amsterdam press has begun to question the wisdom of such a competition, one in which all the finalists showed plans for large, low buildings that monopolize the site.

According to one writer, "A disadvantage of an open competition is that the participants are not as well acquainted with the city building situation when a plan must be projected as in a situation where a commission would be awarded to develop a plan." Especially in Amsterdam, where for centuries, the architecture has been systematically planned according to a certain style, it is difficult in the center of the inner city to develop a plan for a large building that will fit in naturally with its surroundings.

The jury has not yet issued its report. It will be available at the end of March, and perhaps it will at least clarify the reasoning behind its decision.



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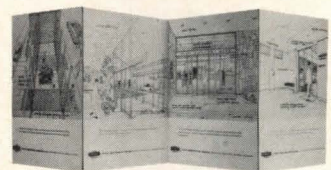
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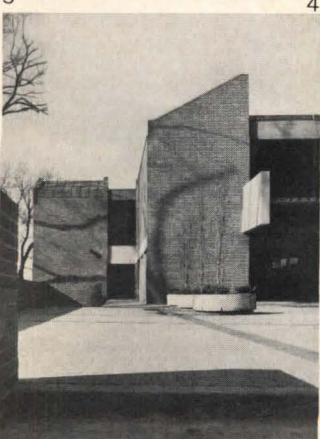
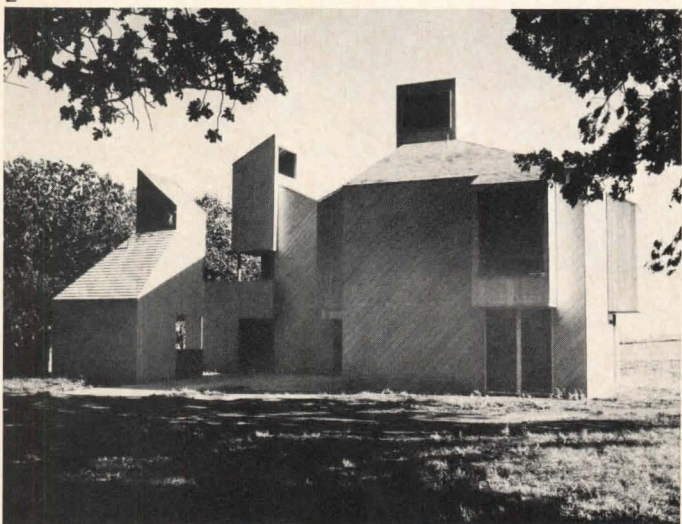
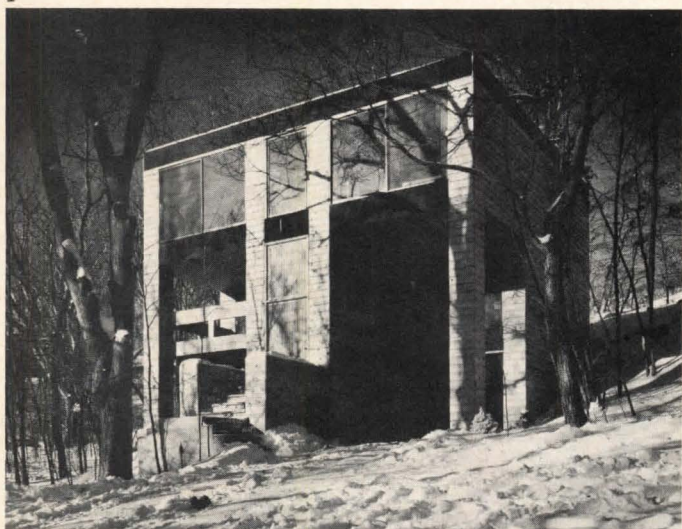
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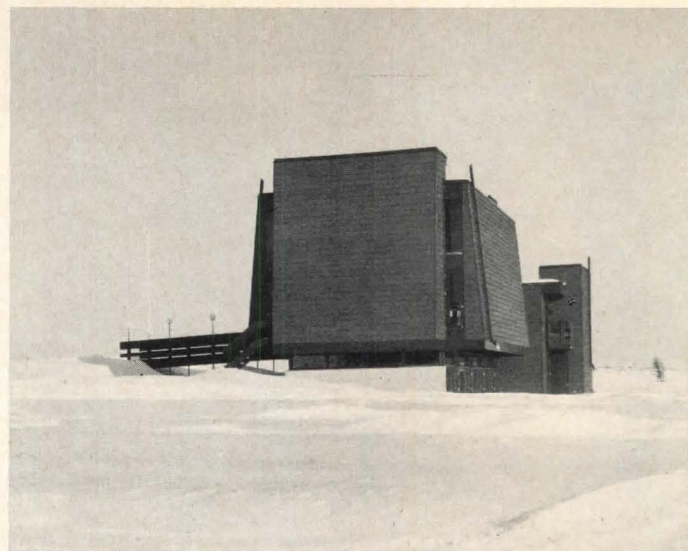
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IOWA CHAPTER HONORS ANNOUNCED



DES MOINES, IOWA. The Iowa Chapter, AIA, presented design awards to seven firms at its annual meeting, held late in January at the Des Moines Art Center.

Crites & McConnell of Cedar Rapids led the list of winners with eight awards: three Medal Awards for its design of the Farmers State Bank of Marion (1), the Ferris Residence in Cedar Rapids, and the Oehmke Residence (2) in Iowa City; two Honor Awards for the Knock Residence in Creston and the Uni-



5
tarian-Universalist Meeting Hall in Cedar Falls; and three Merit Awards for the Schuster Residence in Ames, the Birch Residence in Iowa City, and the Men's Residence Group at Iowa State University at Ames.

Other winners of Medal Awards were: Maiwurm-Wiegman of Fort Dodge, for the Okoboji Presbyterian Camp Building (3) in Okoboji; Charles Herbert & Associates, Inc., of Des Moines, for the Brenton Student Center (4) at Simpson College in Indianola; Thorson-Brom-Brosher-Snyder Associates, Inc., of Waterloo, for the Pil-

grim Lutheran Church (5) of Waterloo.

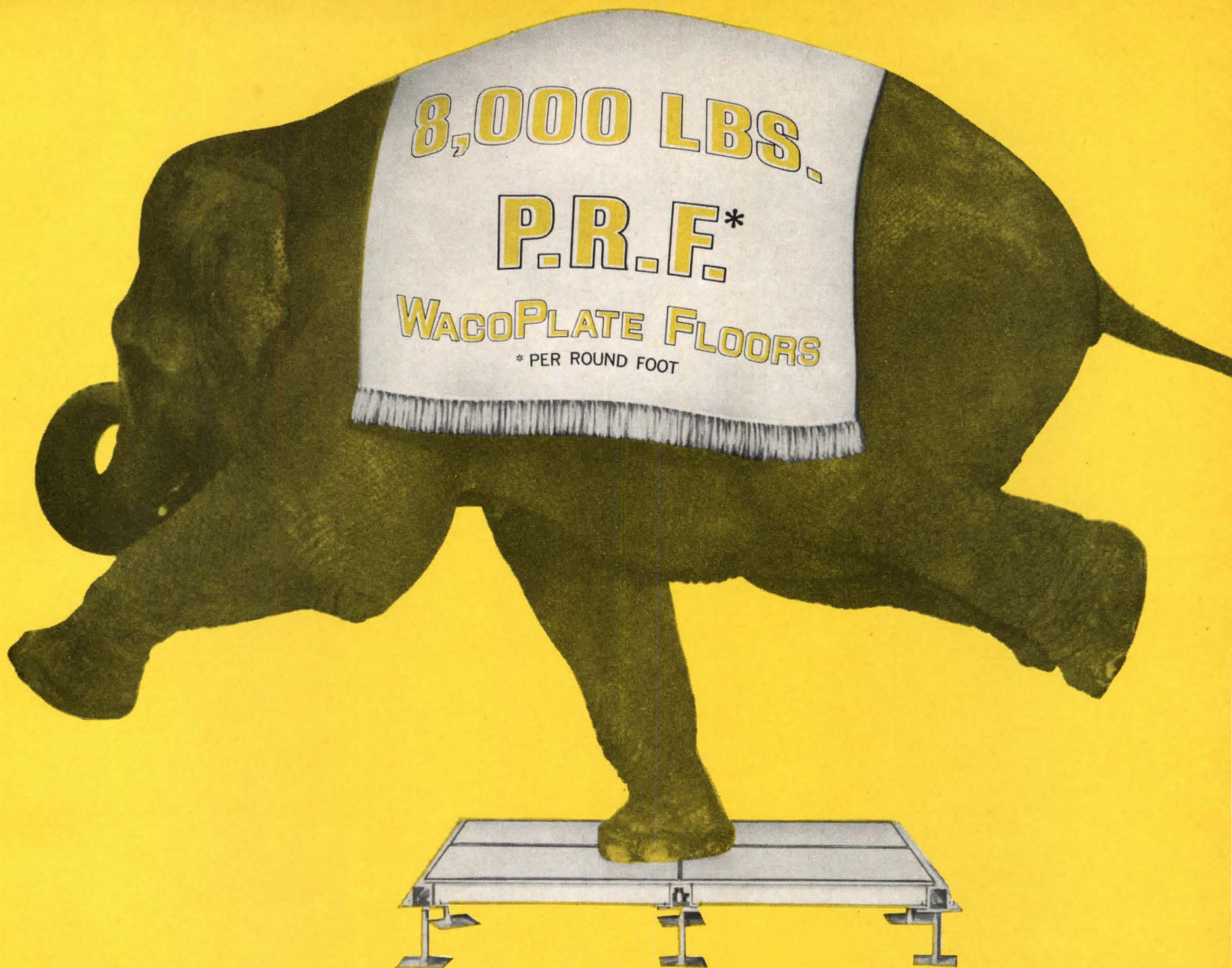
Honor Awards went to: Maiwurm-Wiegman for a Kindergarten and Primary School in Clare; Professor Ray Reed, Head, Department of Architecture, Iowa State University, for his residence in Ames; John Stephens Rice of Des Moines, for the National Bank of Des Moines. Winners of additional Merit Awards were: Charles Herbert & Associates, Inc., for the Black Oake Office Building, Des Moines; and Brown-Healey-Bock of Cedar Rapids, for the Coe College Union in Cedar Rapids.

YALE DISSECTS VEGAS

NEW HAVEN, CONN. The letters "LLV" hung in red neon just inside the exhibition space of Yale's A&A building. It signaled Robert Venturi's and Denise Scott-Brown's (Mrs. Venturi) student presentation of a research and urban planning problem called "Learning from Las Vegas." Charts, maps, diagrams, and photographs hung on every wall; from the ceiling, boomerang-shaped maps hung guillotine-like, expressing the configuration of Las Vegas' Route 91 — "the archetype of the commercial strip." All was reflected in the silver vinyl of Project Argus (p. 152, OCTOBER 1968 P/A), which still sprawls diagonally across the space. Attending the presentation, together with students and faculty of Yale's Department of Architecture, was a star-studded list of guests chosen from among those in-

terested in Pop Architecture With and Without Pop Architects: present, of course, were the Venturis, Charles Moore, and Vincent Scully; also Donlyn Lyndon, Alan Lapidus, Kevin Roche, pop pundit Tom Wolfe (Tom Wolfe?), publisher George Braziller, P/A's C. Ray Smith and other critics from art and architecture circles. An elaborate presentation of great variety filled the entire day — 10 A.M. to 10 P.M. on January 10.

Denise Scott-Brown maneuvered the students and guests from corner to corner in and out through Project Argus, changing location for each topic of the presentation. The show presented the study of what Robert Venturi called "a new kind of urban environment that simply sprawls from the social and commercial needs of contemporary life." One study, "Activity Patterns," used color-coded



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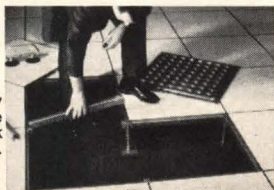
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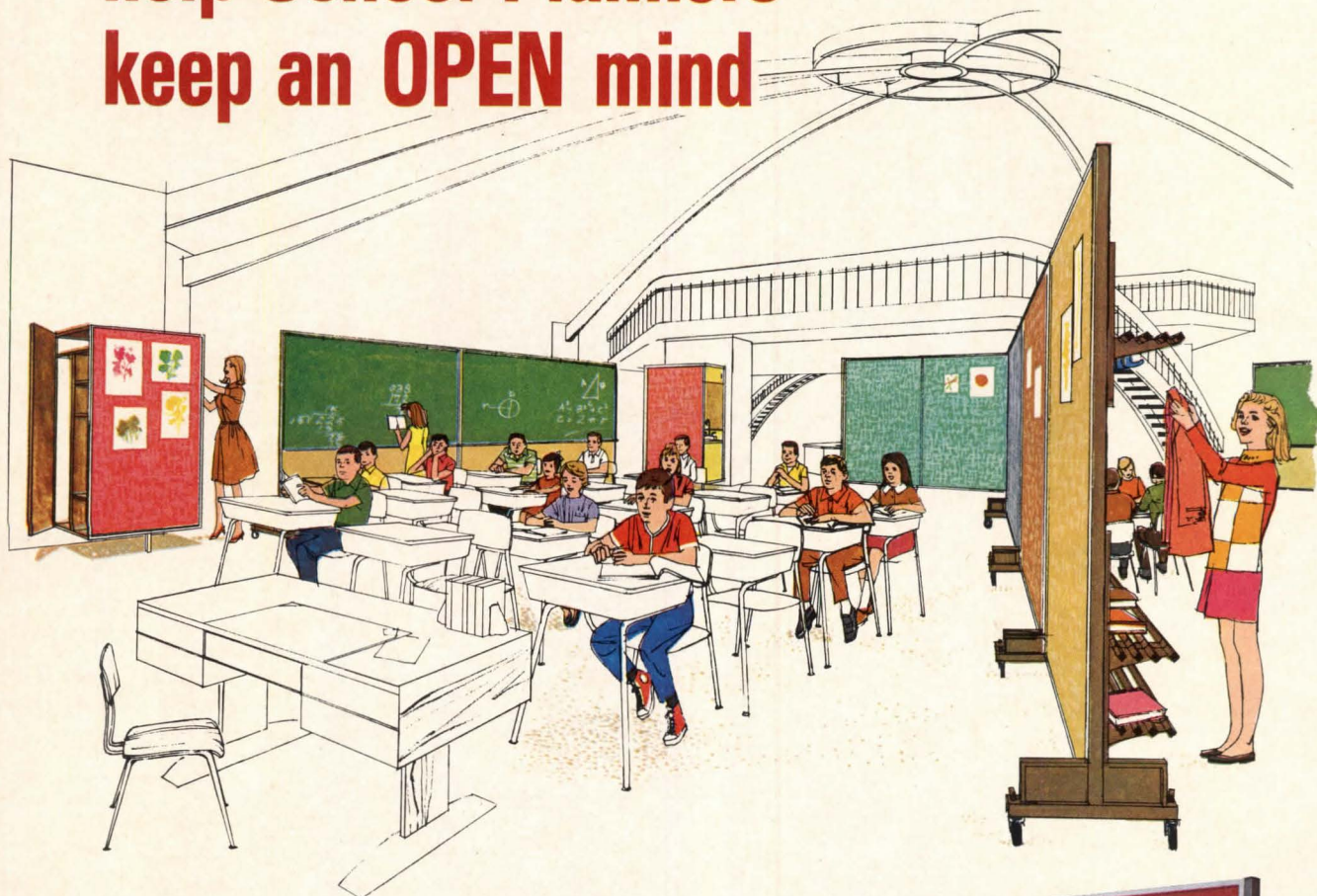
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maps to spot the locations of gambling casinos, wedding chapels, and food stores; another research project, "User Behavior," dealt with the iconography of parking lots, "vehicular behavior," and the inadequacy of directional signs in leading motorists into the desired driving patterns. Others, such as "Communication Systems" and "Anatomy of Signs," dealt with the scale, visibility, and construction of Vegas' flashing, bubbling neon supersigns. There were beautifully drawn and presented diagrams and maps. One observer called it a Beaux Arts presentation of the most meticulous character, and it did seem, in fact, as if measured drawings of outhouses were being presented.

There were also some spectacular slide shows and films, including one three-screen film of the Las Vegas strip as viewed from a car while driving up and down the strip by day and then by night; another film was taken while flying over the casinos — with their joyously beautiful signs — by day and by night.

Both Bob and Denise Venturi confessed that they did not yet know what material

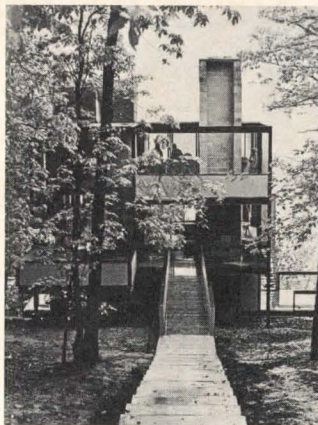
of value had been learned from the investigation, which had taken the form of three weeks' library study, four days in Los Angeles, and ten days research on the spot in Las Vegas. The researchers then spent 15 weeks analyzing and presenting their findings. But one thing was apparent: the investigation had opened everyone's eyes to a strong, vital, if unpopular, environment spawned by our society; and, until recently, largely ignored. It was also, according to Venturi, a step forward, in the way of "getting some imagery and inspiration from commercial architecture as early modern architects looked to industrial architecture for inspiration." And it also very evidently made an innovative contribution to architectural education, as the Venturis pointed out, "in that it attempts, through adapting the format of the city planning or urban design studio, to improve the intellectual level of studio education, while maintaining the synthetic and learning-by-doing tradition of the architectural studio. It is a technical studio tuned to the development of new professional skills relevant to new needs." — CRS

DESIGN IN STEEL

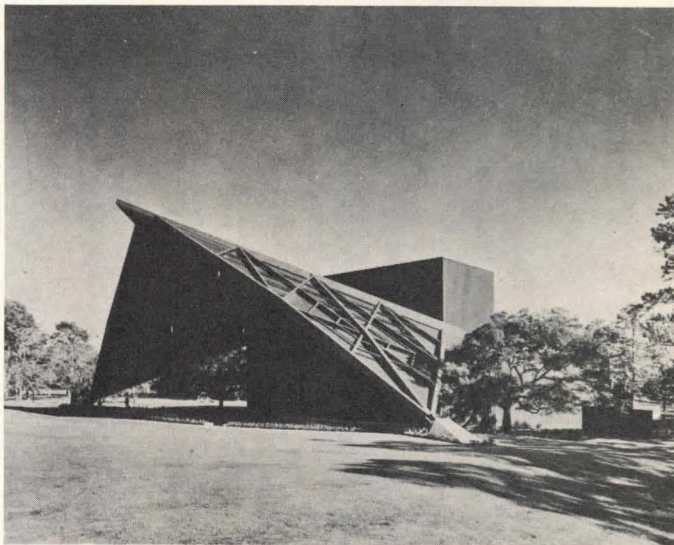
NEW YORK, N.Y. Early this month, the 1968-69 Design in Steel Award Program came to a close as the American Iron and Steel Institute announced winners in 17 categories and subcategories.

The following awards and citations were presented in A-E categories. Best Design in Residential Constructions: Louis Skoler, Architect, Syracuse, N.Y., received an award for his private vacation house

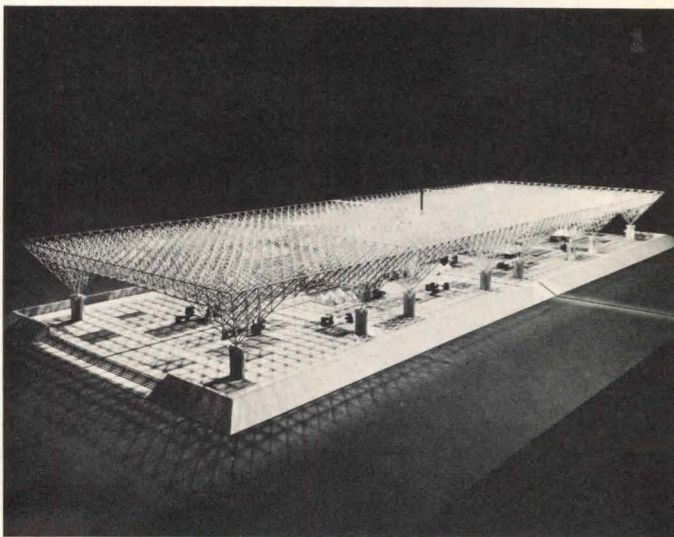
design (1). Henry T. Elden of Henry T. Elden & Associates of Charleston, W. Va., received a citation for excellence in this category for his design of a steel-framed residence. No award was given for Best Engineering in Residential Construction; John A. Taras of Pacific Grove, Calif., received a citation for engineering of a private residence. For Best Design in Low-Rise Commercial, In-



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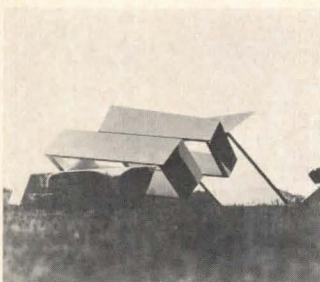
The Award for Best Engineering in Low-Rise Commercial, Industrial, or Institutional Construction was made to Mike Barrett, Charles D. Keyes, and William B. O'Neil of Ketchum-Konkel-Barrett-Nickel-Austin, Denver, Colo., for their Denver Convention Center Exhibition Hall (3). The one citation in this category went to J. E. Sirrine Company, Greenville, S.C., for the Clemson University

Industrial, or Institutional Construction, Eugene Werlin & Associates, Houston, Tex., received an award for their design of the Miller Outdoor Theater (2). Cited for excellence were Skidmore, Owings & Merrill of San Francisco for their Oakland-Alameda County Coliseum; Charles S. Chan of Houston, Tex., for his Automobile Showroom Complex; and Ziegelman & Ziegelman of Birmingham, Mich., for their design of an interim Bank Building.

Littlejohn Coliseum. Skidmore, Owings & Merrill of San Francisco won the sole award in the category of High-Rise Commercial, Industrial, or Institutional Construction with their design of the Alcoa Building (4). A welded space frame for a mine hoist designed by Leo Borasio, Svend A. Ronlov, and Chester C. Jancewicz, of the Stearns-Roger Corp., was named winner of the award



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for Best Engineering in High-Rise Commercial, Industrial, or Institutional Construction. Cited for excellence were R.S. Fling, J.E. Sadler, and P. Mannik, of Fling & Eeman, Inc., Columbus, Ohio, for

their steel dome roof of the Convocation Center, Ohio University. In the new category of Art in Steel, best work was adjudged to be the sculpture "Fallen Sky" (5) by Beverly Pepper of New York. The three works cited for excellence in that category were: the sculpture "Tropic" at the U.S. Pavilion at HemisFair 68, San Antonio, Tex., by Alexander Liberman; the sculpture "Steel Mace" by Charles O. Perry; the sculpture "Diamond" by Antoni H. Milkowski, and a Welded Painted Steel Sculpture by Forrest Myers.

CALENDAR

A series of symposia for planners and architects of performing arts centers, titled "Theatres, Auditoriums, and Concert Halls: The Effective Collaboration," will be held in four cities this spring. Sponsored by the New York firm of Bolt, Beranek & Newman, Inc., acoustical, lighting, and theater consultants, they will be held at the following times and places: March 14-15, Sheraton-Palace Hotel, San Francisco, Calif.; April 11-12, Inn On the Park, Toronto, Ontario, Canada; April 25-26, Sheraton-Ritz Hotel, Minneapolis, Minn., and May 2-3, Holiday Inn Downtown, Atlanta, Ga. . . . For details, write to Bolt, Beranek & Newman, Inc., 101 Park Ave., Suite 325, New York, N.Y. 10017 . . . The 1969 National Conference of the U.S. Institute for Theater Technology is scheduled to take place March 17-20 at the Hollywood Roosevelt Hotel, Los

Angeles, Calif. Special discount travel arrangements are being made for participants from the New York area, since this is the first national conference the organization has held west of Chicago. Write for information about registration to: Tom Lehman, USITT Conference Registrar, c/o Beckman Auditorium, Caltech, 1201 E. California Blvd., Pasadena, Calif.

WASHINGTON/ FINANCIAL NEWS

by E. E. HALMOS, JR.

What the Budget Holds for Architecture—Because of the foregone conclusion that it would be changed as much and as soon as possible by the Nixon Administration, the usual searching examination of the final budget message delivered by President Johnson was by-passed by much

of the Washington press corps.

President Nixon will of course do what he can to pare down the \$195,300,000,000 spending program Johnson outlined, both to make good on some campaign oratory, and, more important, to make some room for his own programs.

Nevertheless, the final Johnson document may prove a good general guidepost, since many of the programs it was planned to fund are dictated by law, and are not subject to much Presidential discretion. Where any real cutting may come must center on direct construction work; or on social programs either not yet under way or just started, which might thus be cut without too much damage or waste.

Nixon has indicated his opposition to any "start-and-stop" handling of construction, so it isn't likely that he will try "holdbacks" such as were made in the highway program within the past year. Instead, he will probably use a direct stop order. Washington had a horrible example of the effect of curtailments and put-offs: The Bureau of Public Roads quarterly cost index jumped more than 11 points, to reach an all-time high in the last quarter of 1968. Statisticians blamed the jump on curtailment of contract lettings.

Therefore, in areas of direct interest to architects, there's not much likelihood of any substantial cut in the \$604 million appropriation sought for military housing construction, or—at least so long as hostilities continue—in the \$530 million requested for direct military construction.

Model Cities Cut Not Likely—By the same token, the \$540 million requested for the Model Cities program is likely to stand.

But the \$982,900,000 sought for academic loans and grants (for construction purposes) might be chopped down; so might the \$43 million asked for highway beautification.

Behind the Real Budget—Where the real cutting can be done is in another aspect of the budget message: the figures listed under the heading "NOA" (for New Obligational Authority). This is the

annual "blank check" request, under which Congress is asked to permit the Federal agencies to "obligate" the Government for additional amounts, even if actual appropriations are not available.

Added up, the "NOA" requests amount to \$210 billion, not the \$195,300,000,000 figure reported by most general publications.

The difference is sometimes enormous: Where \$530 million is asked for expenditures for military construction, the NOA request is for \$1 billion; where the budget seeks \$36 million for expenditure on neighborhood facilities grants (under Housing and Urban Development), NOA would amount to \$52,500,000. A total of \$1 billion of Urban Renewal "NOA" is requested; \$473,500,000 "NOA" for low-cost public housing; \$750 million for Model Cities; \$65 million for comprehensive planning grants, against \$45 million in requested appropriations.

Chopping of these requests for future spending authority would put a tight rein on the Federal departments, and could provide the needed breathing room for any future Nixon programs.

Of course, there's another aspect to Federal spending: What Congress will do with any proposals that the President may make; and what it will do on its own.

As to Presidential requests, Congress seems willing enough to give Nixon his honeymoon—to wait for his suggestions and generally consider them favorably. However, there's also the prospect that it may add substantially to such requests. (Congress can talk a lot about fiscal responsibility, but doesn't have the actual responsibility for balancing the budget.)

Current Money Bills—There were relatively few major spending matters among the 6000 or more bills that had gone into the Congressional hoppers by mid-February.

Biggest was a proposal (S. 269) for a \$400-million-a-year loan-guarantee program to start an attack on a reported backlog of more than \$10 billion in needed construction and reconstruction of U.S. hospitals. Other bills that would involve added

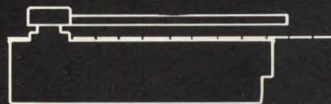


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March 1969

spending were, for the moment at least, in other areas, such as stream pollution.

The most hopeful bill to go in, from the viewpoint of those pushing for more local public works, is S.409, which would set up a \$25 billion Urban Development Bank, with 50% of funds to be subscribed by the Federal Government, the rest by states and municipalities; the bank would buy up tax-free bonds of local governments at low interest rates, sell them to private investors.

Meanwhile . . .—On other legislative fronts, possibly the most worrisome bill was a House measure (HR 3808) that represents another attempt to set up Federal safety standards for all industry, with particular emphasis on construction. Previous attempts have consistently failed.

In the legislative field, another battle for the construction industry was begun, one that it apparently will win.

The battle has been joined over the issue of capricious application of equal-employment-opportunity laws, on which each Federal department has been merrily making its own interpretations. Appearing before a subcommittee of the Senate Public Works committee, contractors and state officials were unanimous in approving the principle of equal employment, but also unanimous in denouncing administrative procedures. They cited case after case where a contractor's plans had been approved in one state, the same plan disapproved in another, because of lack of uniformity of regulation. The matter affects all construction where Federal funds are involved, and it seemed likely that Congress will insist on uniform rules.

The highway segment of the industry had won one major victory (despite the unexpected lack of support by AIA) over the outgoing Federal Highway Administration, over controversial proposed regulations setting up two-step hearings for highway route planning and design, and an appeals procedure that would have set the Federal Highway Administrator as supreme arbiter (over state officials and courts) of disputes.

The appeals procedure was eliminated completely, the rest of the requirements modified, and, most significantly, the regulation was finally issued as a "PPM" (policy procedure memorandum), which can be changed easily by administrative order.

On a local level, architects were still awaiting (as of early February) a final Nixon Administration decision on who would head up the National Capital Planning Commission. It appeared that Philip G. Hammer, who has been serving as chairman under a Johnson appointment and whose term runs to 1973, would continue, and that Nixon would be content to make his own appointment when the term of Seattle architect Paul Thiry expires in April. Other members, who serve *ex officio*—such as the heads of the National Parks Service, Bureau of Public Roads and Public Buildings Service—will change as new appointments are made.

The commission acts as city planning arm for the District of Columbia and the Federal Government.

FINANCIAL

■ The startling jump to a reading of 132.6 (with 1957-59 as 100) in the highway cost index was a shocker to construction; it represented a rise of 11.3% over the fourth quarter of 1967, was blamed on higher costs of excavation. The rise was reinforced by a smaller but equally significant rise in the monthly cost index on water and sewer construction, which went up 1.44% in December, over November.

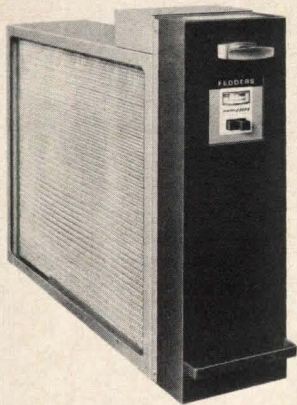
■ Housing starts seemed to be winding up 1968 at predicted rates. According to the Census Bureau, in October, rate of starts was at an adjusted rate of 1,548,000 for the year.

■ Total construction volume dropped slightly, in November figures now available, to a rate of \$86,700,000,000 compared with \$87 billion in October. Nevertheless, the total was about 9% over the previous year.

■ HUD's action in raising allowable maximum interest rates to 7½% was seen as a potential boost for housing; the higher rates (previous top was 6¾%) were expected to attract money back to the mortgage market.

PRODUCTS

AIR/TEMPERATURE



Particle precipitation. Operating on the principle of electrostatic precipitation, this electronic air filter system is adaptable for installation in the return air duct of any heating, cooling, or air-handling system. Offered in both one- and two-cell models, the duct dimensions for both are 18 3/4" high by 23 1/4" wide. The air cleaner is said to be 95% efficient. A sail switch installed in each unit energizes the electronic cells whenever air circulation occurs. Also included are a pre-filter and a performance sensor meter that indicates the efficiency level of the system and signals the need for cleaning; simple detergent washing is claimed to restore efficiency. Fedders Corp., Edison, N.J. 08817.

Circle 100, Readers' Service Card

Rooftop air directors. Two models of rooftop air conditioners offer a 7 1/2 ton cooling package. Together, they provide 225,000 Btu's of gas-fired heating. Both units are 39" high and factory wired, piped, charged, and packaged. Both feature overload protection, and the heating model also carries two-stage main gas valves, which allow a 50% capacity reduction, providing more even heat at lower operating costs. Installation accessories include a standard supply and return air plenum as well as ducts and connectors for outside application. Semi-automatic and fully automatic operations are available, as is a special control center with fan

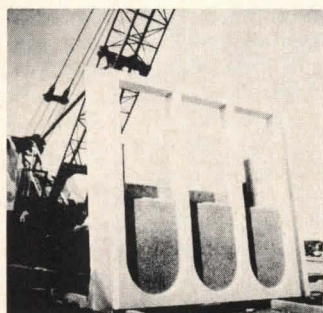
and system switches, plus heating, cooling, fan and reset indicator lights. Worthington Air Conditioning Co., 14 Fourth Ave., East Orange, N.J. 07017.

Circle 101, Readers' Service Card

CONSTRUCTION

Ribbed sidewall panels. "Rustic Rib" all-aluminum panels were developed as sidewalls, soffits, and fencing. The panels are ribbed vertically in sections 18" wide for standard 16" coverage, in lengths up to 39'. A built-in drainage channel is said to prevent side lap leaks without requiring gaskets or calking. With accessories, the panels are available in 11 acrylic low-gloss colors. Reynolds Metals Co., Building Products & Supply Div., 325 W. Touhy Ave., Park Ridge, Ill. 60068.

Circle 102, Readers' Service Card

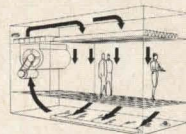


Hot fiberglass form. Electrically heated fiberglass forms reduce precast concrete initial curing time to six hours. Manufacturer claims uniform heating gives concrete an even surface color. All forms are custom made. Conformco, 36 Water St., West Concord, Mass. 01781.

Circle 103, Readers' Service Card

DOORS/WINDOWS

Circulating air curtain. The Stanley Air Curtain is an air-circulating system that is said to provide a controlled downward flow of air (thus the name curtain) at entranceways. It may be used in the place of regular doors, or in conjunction with the manufacturer's Auto-Slide doors for protection in severe weather. In this curtain system, blowers circulate air through a duct to a plenum above the entrance; from



here the air is directed downward, then drawn through a floor grating, cleaned, and recirculated. An automatic sensing system is said to change the direction and velocity of the air flow to offset changes in outside wind velocity. In addition, the air curtain is claimed to effectively screen out dirt and insects. The Stanley Works, New Britain, Conn. 06050

Circle 104, Readers' Service Card

Distortionless glazing. Improvements in the laminating process that produces Kayrex glazing are said to give it more transparency and to eliminate distortion. Because of its shatter and breakage resistance, Kayrex is best suited for use in such buildings as industrial plants and schools. Kayrex glazing is a laminate of specially sized and treated steel-wire mesh embossed between sheets of rigid vinyl. Kayrex is said to offer three times the thermal protection of ordinary glass. It is UL classified as noncombustible, and further said to be shatterproof and acid-resistant. It is available in thicknesses of .090", .120", and .250", in three transparent and translucent colors. It is furnished in ready-cut glazing sizes or 48" x 96" sheets. Kaykor Products Corp., Yardville, N.J. 08620.

Circle 105, Readers' Service Card

ELECTRICAL EQUIPMENT

Stepless passenger conveyor. Traveling at a speed of 120 fpm, the "AiRide Speed-Ramp" can carry carts, strollers, and wheelchairs as well as people on a 15° slope. A broad, flat grooved rubber belt is said to assure a level entry and exit. The system consists of two 39" treadway width units, one traveling



"UP", and the other, of course, "DOWN"; handrails move with the ramp. The deck and trim of the Speed-Ramp are of satin finish stainless steel with laminated glass balustrade panels. Units are available for installation on level surfaces, where they are known as Speedwalks. Stephens-Adamson Manufacturing Co., Passenger Conveyor Div., Ridgeway Ave., Aurora, Ill. 60507.

Circle 106, Readers' Service Card

FINISHES PROTECTORS

Tread trends. Amcolun abrasive epoxy stair tread needs no aluminum ribbing. The specially developed uninterrupted epoxy is said to bond easily to the curved surfaces of the tread. Available in 12 standard colors, Amcolun may also be made to any color specification. The tread is furnished to size, or in up to 10' lengths. American Abrasive Metals Co., 460 Colt St., Irvington, N.J. 07111.

Circle 107, Readers' Service Card

The invisible shield is Barrier, a transparent sealant for concrete, asphalt, wood, metal, and masonry surfaces. Said to penetrate and thus become part of the surface, Barrier is also said to be equally effective on painted and unpainted surfaces. Applicable by brush, spray, or roller, the film is said to have a moisture vapor transmission rate of less than 0.1 gm per sq ft per 24 hrs. In addition, it is water-repellent. The film is elastomeric, and claimed effectively to withstand repeated expansions and contractions of the substrate. For use on interior and exterior surfaces. Barrier Pacific Corp., 850 Delta Lane, W. Sacramento, Calif. 95691.

Circle 108, Readers' Service Card

FURNISHINGS

Architectonics. From the Boris Kroll nomad collection comes "Karnak," a

This ceiling makes it easy to uncover what you've covered up.

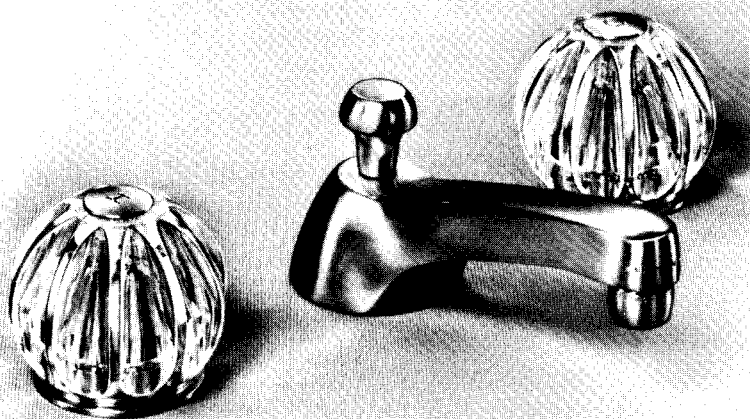
Its unique tile suspension system provides complete accessibility at any point in the ceiling. The system is called ATS...the Accessible Tile System...by Armstrong. Among other things, it eliminates the need for costly access panels. Panels that spoil the look of a tight, tile ceiling. With ATS, a simple tool is all that's needed to gain access or to change tiles or to rearrange light fixtures. And routine maintenance is done with little bother to people working under it. ATS and other ceiling innovations are described in our folio. Please write for a copy. Armstrong, 4203 Watson Street, Lancaster, Pa. 17604.

Armstrong
Ceiling Systems that work

Or on Readers' Service Card circle No. 300.



NEW *Tiffany* SERIES

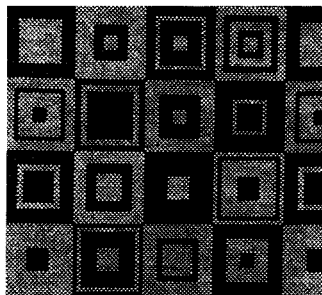


A beautiful, stunning combination of sparkling acrylic and brushed gold or gleaming chrome fittings . . . crafted and finished to match the loveliest baths and powder rooms . . . for those who want and deserve the ultimate in rich and elegant fittings.

And there's matchless quality inside too . . . Chicago Faucet's famous trouble-free and drip-free operating mechanism provides long-lasting service that is . . . unsurpassed . . . and truly outstanding.



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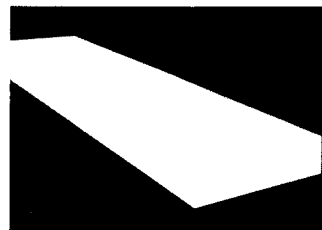
heavy-stitched Jaquard weave that is said to be rugged enough for publicly used furniture. The fabric is 54" wide, with a vertical repeat of 7" and a horizontal repeat of 6½". "Karnak" is available in seven color ways that range from rust, fawn, and amethyst to a bronze, olive, and navy or a kumquat, scarlet and purple. Boris Kroll Fabrics, Inc., 979 Third Ave., New York, N.Y. 10022.
Circle 109, Readers' Service Card



Rhythm in wool. One of a collection of 15 rug (or wall hanging) designs for 1969, "Bali" is a Polynesian-inspired design by Robert Wallace. The scale and rhythm are said to emphasize "the movement of the surf." Vivid contrast is achieved not only through a bold use of brown, black, and white, but also in the creation of a three-dimensional texture, a characteristic trait in the V'Soske collections. V'Soske, 155 E. 56th St., New York, N.Y. 10022.
Circle 110, Readers' Service Card

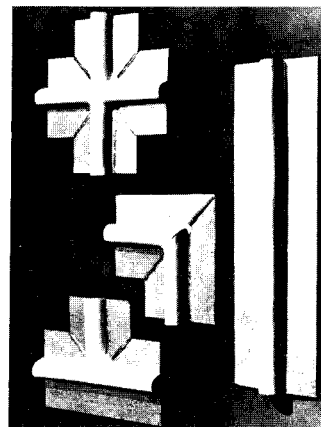
LIGHTING

Both sides now. The Hallmark ceiling-mounted lighting fixture features a prismatic lens that has luminous sides and ends, rather than tradi-



tional opaque ends. Light is transmitted from all sides because the luminaire is a single piece of injection molded acrylic. A slanted edge around the chassis of the fixture is said to permit uplighting and to eliminate fixture shadow. With a depth of 3", the Hallmark is 12" wide in the two-lamp model, and 16½" wide in the four-lamp model. It is available in 4' and 8' lengths. In addition to surface installations, the fixture may also be suspended or stem-mounted. Day-Brite Lighting Div., Emerson Electric Co., 5411 Bulwer Ave., St. Louis, Mo. 63147.
Circle 111, Readers' Service Card

ROOFING



Concealed expansions. Designed for roof-to-roof and roof-to-wall installations on built-up roofs, these 2" profile expansion joint covers are said to offer weather-sealed protection. The Barrett Expansion Joint Shield is available in up to 50' lengths and has accessory tee, corner and crossover connections. It is fabricated of a flexible, insulated bellows that is mechanically locked to metal flanges. The flexible bellows compensates for movement in any direction, and thereby eliminates stress at joints. Copper, galvanized, and stainless steel flanges are available. Celotex Corp., 1500 N. Dale Mabry, Tampa, Fla. 33607.
Circle 112, Readers' Service Card

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For detailed specifications in
Moentrol's Architectural File,
see page 5b/MO.

ARCHITECTURAL MODELS



Colony Square Project, Atlanta, Georgia. Designed by Jova, Daniels, and Buzby, Atlanta. The model is 1/16"=1'-0" scale, with a five foot square base. It is being used for presentation and public relations.

Request free brochure or for estimate on architectural or styrofoam contour model send plans to Osmont Architectural Models, P. O. Box 496, Shawnee Mission, Kansas 66201. Phone 913 CO 2-1666.



On Readers' Service Card, Circle No. 423

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Reprints of the main editorial sections of these outstanding issues of **PROGRESSIVE ARCHITECTURE** are available to readers at \$1 each.

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October 1968 reprint — Circle 434

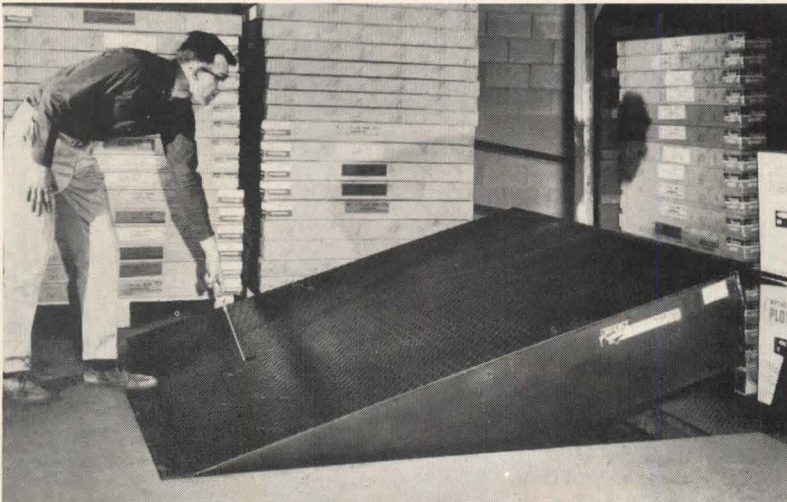
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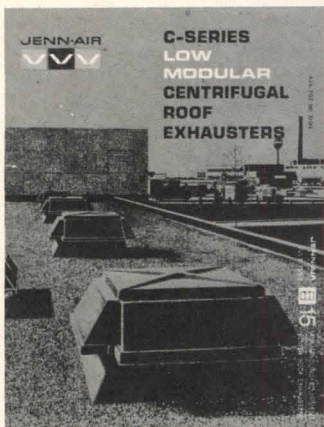
MFRS' DATA

ACOUSTICS

Plenum accessibility. TAB-LOCK 281 is said to be the first concealed acoustical suspension system with a true grid. Thus claimed to be structurally stable without tiles, TAB-LOCK 281 has both the accessibility and convenience of an exposed grid. For the same reason, sequential installation and removal are unnecessary. Grid for 12" x 24" tile is 4' x 4'. For 24" x 24" tile, grid is 4' x 6'. Installation drawings include details of each component, with dimensions and load limits. Specs. Bulletin. 4 pages. Architectural Metal Products Div., Eastern Products Corp., 1601 Wicomico St., Baltimore, Md. 21230.

Circle 200, Readers' Service Card

AIR/TEMPERATURE



Exhausted industrial air. The C series low modular roof exhausters feature a cover especially designed to eliminate condensation problems, and offer optional curb and cap additions that afford three-way weather protection. Schematics best describe the units, but additional charts give weight and dimensions for each model, as well as capacity and some value data. The modular intake relief heads are available in multiple units with various combinations. Specs. Catalog. 12 pages. Jenn-Air Corp., 3035 N. Shadeland Ave., Indianapolis, Ind. 46226.

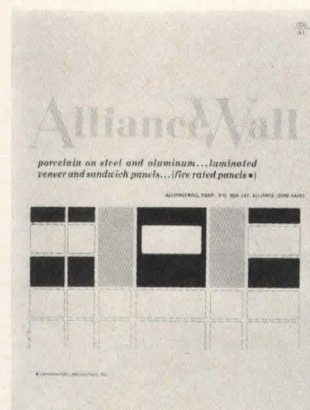
Circle 201, Readers' Service Card

Electrical estimates. From theory to minute detail in the form of charts and graphs, this informative monograph

discusses six possible uses for computers in heating-cooling systems design. Titled an "Introduction to Evaluating Heating Cooling Loads," this booklet also discusses calculation methods, the relationship of heat flow to building construction, guidelines for scrutinizing a particular system, and defines the terms of "comfort conditions." One of a series of similar publications, the primary purpose of this booklet is to inform architects and engineers of developments in electrical environmental systems. 24 pages. National Electrical Contractors Assoc., 1730 Rhode Island Ave., N.W., Washington, D.C. 20036.

Circle 202, Readers' Service Card

CONSTRUCTION



Glass sandwich. AllianceWall is coil fabricated of porcelain on steel and aluminum to form laminated veneer and sandwich panels. Porcelain enamel fused to steel at high temperatures is said to form a fade-proof panel that will not blister or peel. Because of glass-hard properties, the porcelain is also claimed to resist scratching and abrasion. A specially insulated panel is available; various cores for wall and partition panels are also described. Data contains installation drawings, details, dimensions, detailed specs and technical data. Booklet. 12 pages. AllianceWall Corp., P.O. Box 247, Alliance, Ohio 44601.

Circle 203, Readers' Service Card

Structural clay and facing tile. This line of structural clay products for both interior and exterior masonry work in-



cludes face brick and structural tile in a host of shapes, colors, and textures. Featured are: Uni-wall, a two-faced thru-the-wall unit; SCR Acoustile; and Tex 4521, a 12" face brick module. Data includes a centerfold color chart, drawings, installation details, charts of physical properties, and short form specs. Bulletin. 8 pages. Glen-Gery Corp., P.O. Box 206, Reading, Pa. 19607.

Circle 204, Readers' Service Card

Wall gymnastics. An electrically operated folding wall for areas with extremely high ceilings will find application in gymnasiums, cafeterias, ballrooms, and other public areas. This Series 8800 Hufcor wall consists of individual flat panels hinged together in a continuous train. It is operated by an electric motor with a keyed switch. The partition is available for openings to 30' in height, and up to 150' in width. Added panels and intersecting panel trains may fit wider openings, or the shaping of several smaller rooms within a large space. Surfaces available include vinyl covered hardboard, wood veneers, or custom finish. Data contains fabrication and installation drawings, suspension and trolley details, dimensions, and accessories, such as pass doors. Specs. Brochure. 4 pages. Hough Manufacturing Corp., Janesville, Wis. 53545.

Circle 205, Readers' Service Card

DOORS/WINDOWS

Engineered doors. All of the products in this line of metal and wood rolling, sectional, and vertical overhead doors are said to be custom engi-

neered. Offered in the line are service and fire doors, rolling grilles, counter shutters, and sectional overhead doors. Operational possibilities include manual, chain, motor or crank. Description of each door type includes illustrations, drawings, dimensions, installation details, and complete specs. Catalog. 32 pages. North American Door Co., Inc., Lindenhurst, N.Y. 11757.

Circle 206, Readers' Service Card

FINISHES PROTECTORS

Sealing industrial gaps. SCOTCH-SEAL industrial sealants were developed for use primarily in sealing gaps between mating surfaces to prevent the passage of liquids, gases, or minute particles. A host of sealant types are available; possible applications of each are briefly discussed, together with physical properties, performance data, and outstanding features of each sealant. Photos illustrate various application methods. Catalog. 4 pages. 3M Co., Adhesives, Coatings and Sealers Div., 3M Center, St. Paul, Minn.

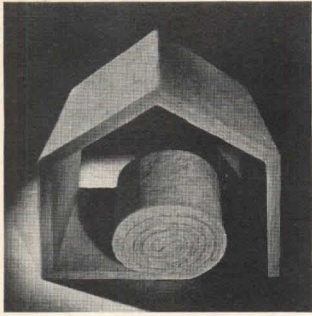
Circle 207, Readers' Service Card

INSULATION

Urethane choice and use. CPR rigid urethane foam is claimed to have the lowest K factor of any insulation on the market. A guidebook describing the foam is also an aid to the choice and use of various urethane foams for insulation. A table compares the physical properties of seven different formulations. Selector chart shows where to use rigid board, prefoamed sections, and three foamed-in-place types that may be sprayed, poured, or frothed. It also gives typical installation details for wall cavities, pipes and pipe fittings, and coverings for expansion joints. 18 pages. CPR Division, Upjohn Co., 555 Alaska Ave., Torrance, Calif. 90503.

Circle 208, Readers' Service Card

"Thermal resistance." High R values (up to R-22.0) are said to typify the performance of six of the manufacturer's fiberglass building insulation products. They are: Kraft Faced,



with an asphalted kraft vapor barrier, said to be especially effective against condensation in attic, sidewall, and former installations; Foil Faced, which offers additional heat reflective qualities; Rigid Fit, an unfaced material with an optional polyethylene film for cavities between studs and joists; Sill Sealer, said to eliminate calking and offer extra protection under foundation walls; Pre-scored Perimeter rigid insulation for foundation slabs; and Pouring Wool, fluffy wool-fiber insulation for use where batts and blankets are not required. Accompanying each installation photo are thermal resistance charts for various thicknesses. Brochure. 8 pages. Certain-Teed Products Corp., Building Materials

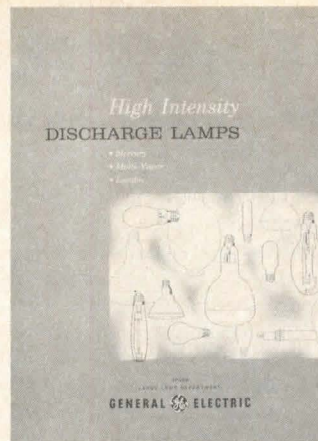
Div., 120 E. Lancaster Ave., Ardmore, Pa. 19003.
Circle 209, Readers' Service Card

Cellular glass insulation. The technique of tapering or sloping Foamglas cellular glass insulation provides slope and positive drainage for conventional flat roof decks. Both slope and insulation are achieved in one operation. Foamglas is fabricated of sealed glass cells that cannot absorb water or moisture. The material is also fireproof and verminproof. Installation details, drawings, and specs are provided. Brochure. 4 pages. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh, Pa. 15222.

Circle 210, Readers' Service Card

LIGHTING

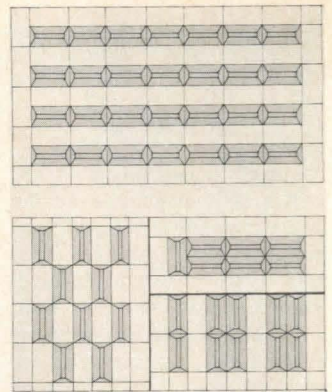
High pressure illumination. According to this manufacturer, there are three principal categories of high-intensity discharge lamps: mercury, Multi-Vapor, and Lucalox. Common to all lamps in these categories are "gaseous discharge arc tubes," which enable



able a high lumens per watt efficiency rating. The booklet outlines the development of this type of lighting, then illustrates lamp parts, bulb shapes and sizes. Performance data and spectral (color) energy distribution data are also included. 27 pages. General Electric, Large Lamp Dept., Nela Park, Cleveland, Ohio. 44112.

Circle 211, Readers' Service Card

School integration-ceiling style. Three ceiling systems are offered as solutions to problems encountered in coordinating air distribution,



lighting, and acoustical control for school buildings. The C-60 Luminaire System combines all of the above, plus fire protection, into one ceiling assembly that is said to permit maximum design flexibility, including rearrangement after initial installation. Data charts various lamp requirements to achieve a lighting level of 100 ft-c maintained in a typical 30' x 30' area with a 9' ceiling. Conditioned air fed into the plenum is said to be distributed evenly through perforations in the ceiling's surface. Rated fire protection is up to 2 hrs. Inclined ceiling panels are said to give the same acoustical control surface as a flat ceiling without lights and air handling capabilities. Also

A window for all seasons... Therm-O-Proof insulating glass

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The Architects Collaborative, Inc. of Cambridge designed this highrise as a home for the hospital staff . . . and insulating units allow the use of greater glass areas so the residents' view is unobstructed the year 'round.

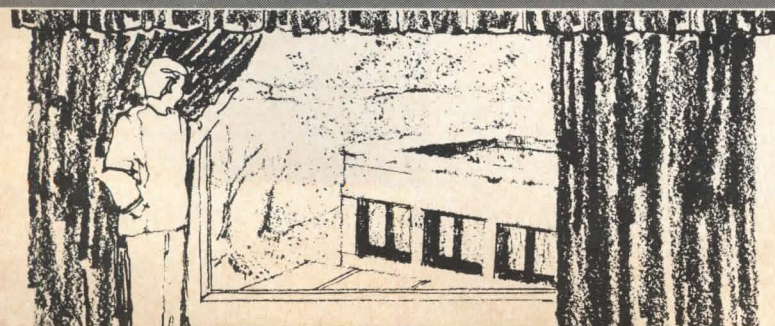
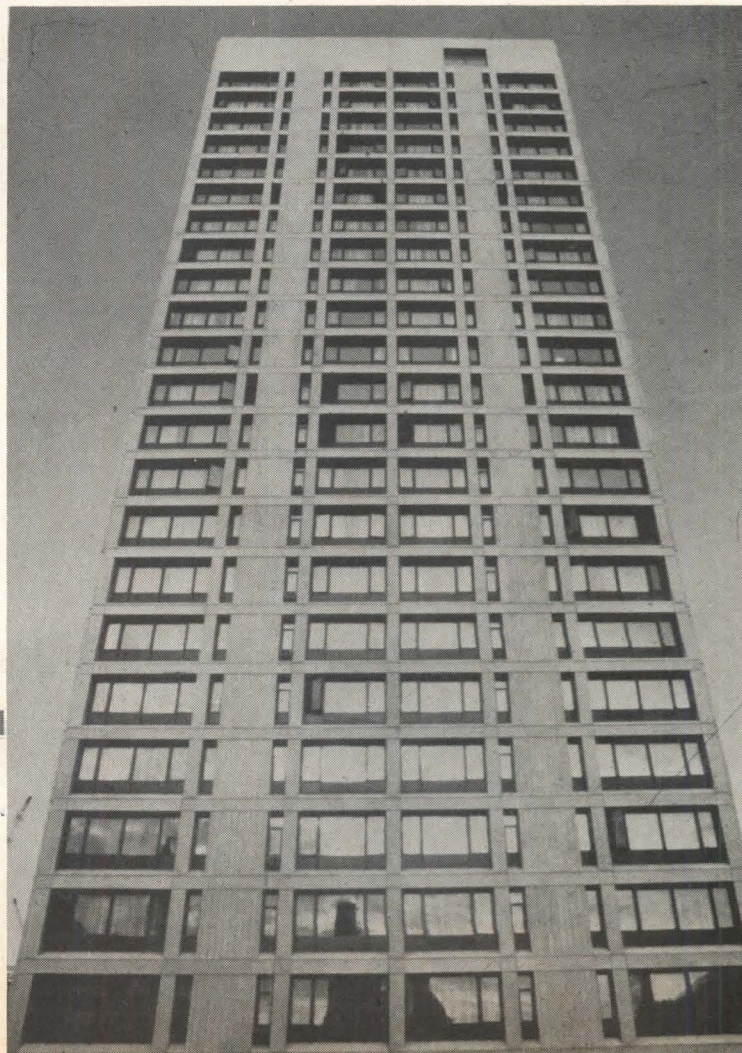
To meet "all-season" requirements, Thermoproof fabricated nearly 2000 units in 20 different sizes using combinations of two lites of $\frac{3}{8}$ " sheet and/or two lites of $\frac{1}{4}$ " plate—both with a $\frac{1}{2}$ " air space.

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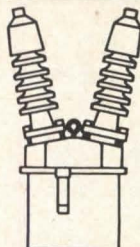
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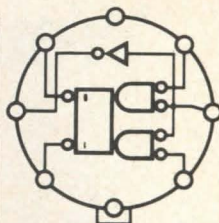
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Oceanside home in Maine; Architect: Edwin A. Koch, Ogunquit, Maine; Cabot's #241 Bleaching Oil on shingles and siding.

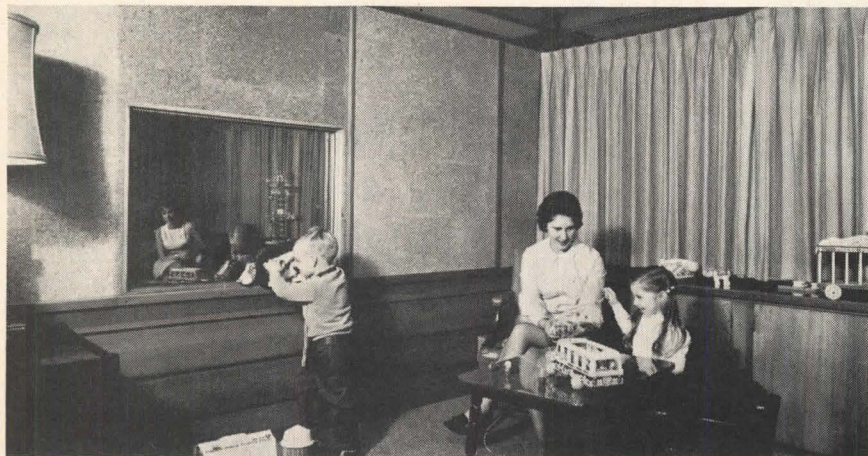


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LIBERTY MIRROR

A DIVISION OF LIBBEY-OWENS-FORD COMPANY
On Readers' Service Card, Circle No. 430

described is Ceramaguard, a moisture, fire, and corrosive-resistant material, and the Accessible Tile System featuring a concealed metal suspension. Brochure. 15 pages. Armstrong Cork Co., Lancaster, Pa. 17604.

Circle 212, Readers' Service Card

OFFICE EQUIPMENT



Shelving the issues. Lundia's prefabricated modular wood shelving may be motorized. Shelves move horizontally, thus reducing necessary aisle space. Photos, details, and dimensions illustrate both assembly and installation of the shelving. Separate sections deal with: shelf spacing and weight capacities, material space, double decking, mobile and motorized shelving, cabinets, counters, bookcases and partitions. Catalog. 28 pages. Lundia, Myers Industries, 224 W. Cerro Gordo St., Decatur, Ill. 62525.

Circle 213, Readers' Service Card

SURFACING

Selecting built-in panels. Five possible substrates and three basic grades of DecraGuard overlay panels permit cost/performance selection of panel composition. Panels may be decorative or structural, for use on horizontal and vertical surfaces. Folder. 6 pages. Simpson Timber Co., 2000 Washington Building, Seattle, Wash. 98101.

Circle 214, Readers' Service Card

PROGRESSIVE ARCHITECTURE NEWS REPORT

REINHOLD PUBLISHING CORP.
430 Park Avenue, New York, N.Y. 10022

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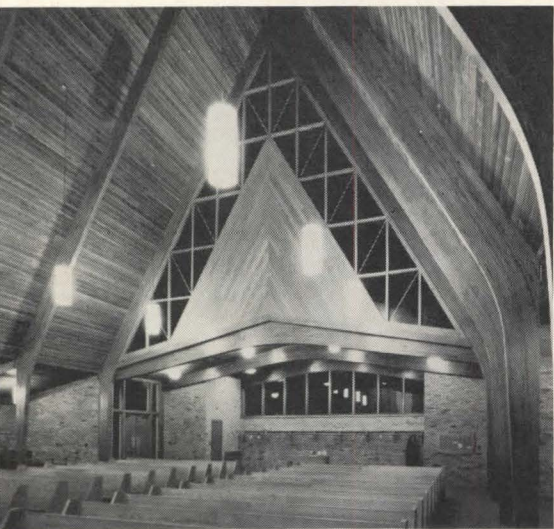
Production Mgr.....Joseph M. Scanlon

Koppers super woods span lots of worlds.

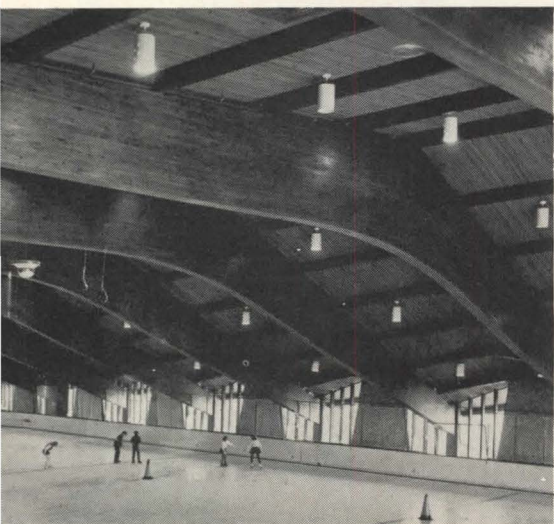
Laminated arches and beams of Koppers super wood offer a world of practical and esthetically satisfying design possibilities in school, church, commercial and even industrial construction. Inherently fire- and corrosion-resistant, these Unit® laminated members perform beautifully as cross vaults, domes, two-hinged or "V" arch frames—thus providing large unobstructed interior space, excellent acoustics and spec-

tacular ceiling effects. Engineered to be strongest where stress is greatest, Unit laminated wood arches, beams, and roof decking provide economical yet imaginative and exciting solutions to a wide range of design and building problems. Write for our 1969 Unit Manual of Design. Forest Products Division, Koppers Company, Inc., 815 Koppers Building, Pittsburgh, Pa. 15219.

MA 3



In addition to adding beauty and dignity, the use of laminated wood beams and arches in the roof construction of this new Presbyterian Church at Independence, Ohio, saved some \$33,000 over an originally specified system of other materials.



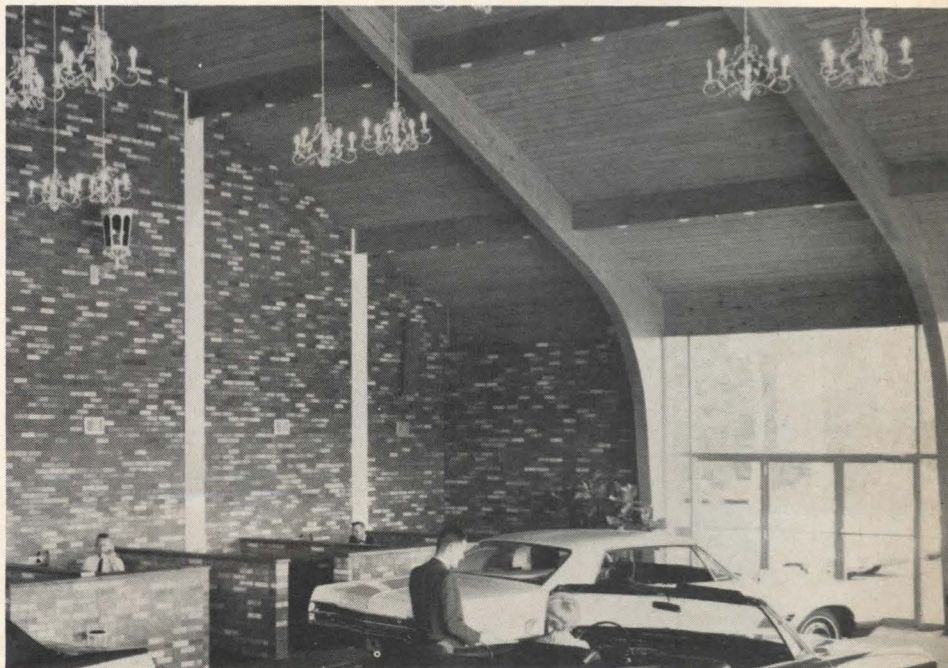
Unit laminated wood beams, each 116 ft. long support the roof of this \$2-million skating rink in Overland Park, Kans. The wood beams plus glue-lam purlins and tongue-and-groove decking, all combined to create an authentic mountain-chalet look, and well within budget requirements.



Unique, eight-sided bank building in Bergen County, N. J., is supported by unit laminated wood arches. The laminated materials and wood roof decking blend naturally with appointments and add a suburban touch.



Unit laminated wood 108 ft. diameter dome framing system, resulted in a spectacular ceiling effect in the Senior High School, Holland, Michigan. Wide spanning provided large unobstructed interior spaces. Dome has excellent acoustical qualities.



Unit laminated wood arches and wood roof decking give the Smyly Buick Showroom in Malden, Mass., a lot of eye appeal. The charm and warmth imparted by wood is particularly appealing to the woman buyer.

KOPPERS
Architectural and
Construction Materials

Construction dust is part of construction. Even the most careful sealant mechanic can't keep it out of every joint.

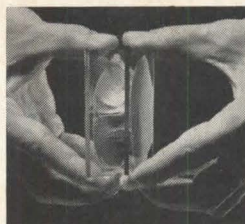
Never mind. MONO has been proving itself against construction dust as well as other job-site hazards for more than 10 years.

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For complete information on the Cosco "1200 Series" of utility seating, write Hamilton Cosco, Department PA-39, Gallatin, Tennessee.

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like rocket proving grounds.
But in air line terminals,
government and office buildings,
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you name it.

Write for the 1969 ZERO Catalog.
It's chock full of full-sized detail drawings —
177 of them —
and join ZERO's boosters.



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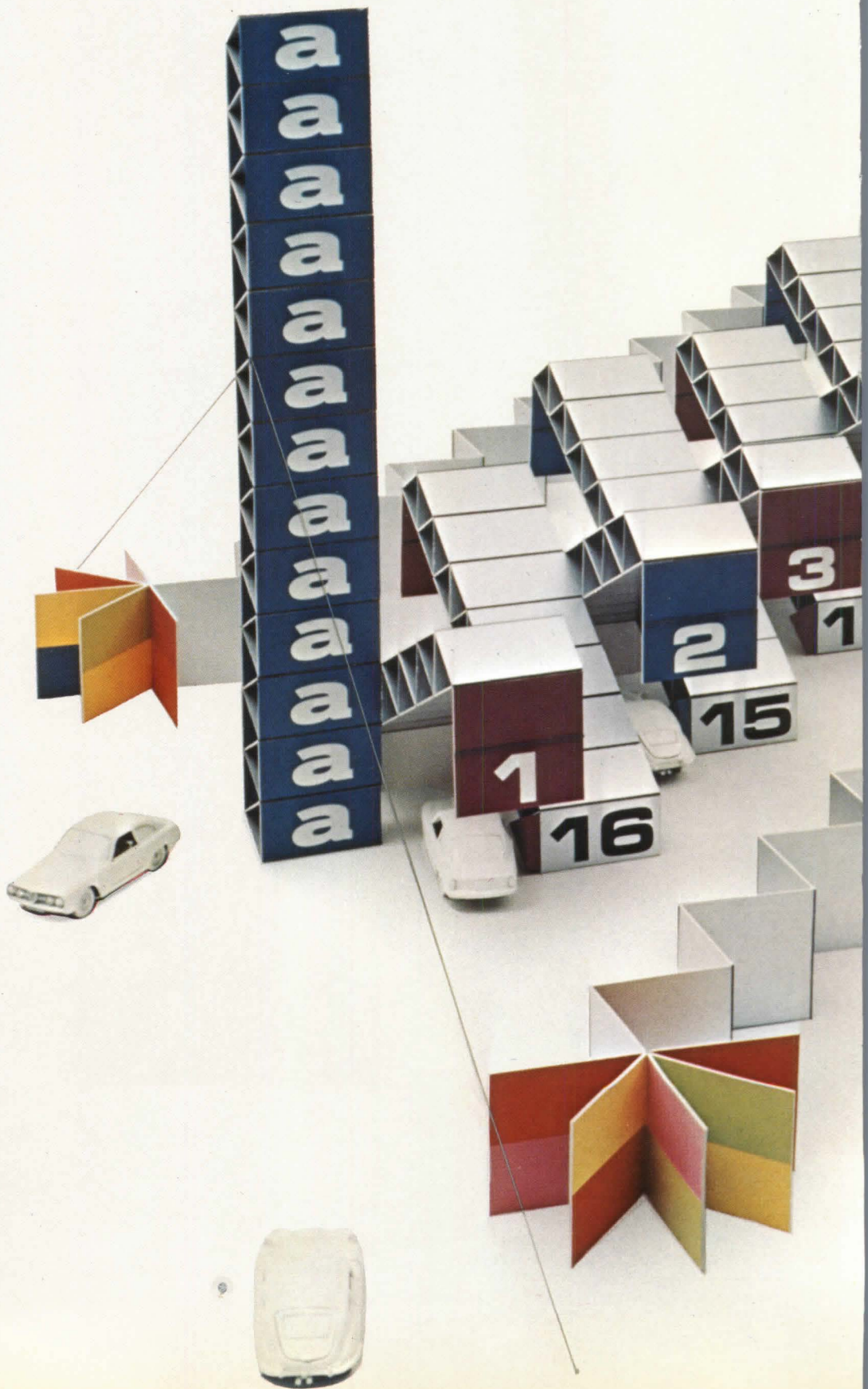
Zero Weather Stripping Co., Inc. 415 CONCORD AVE., BRONX, NEW YORK 10455 (212) LUDLOW 5-3230

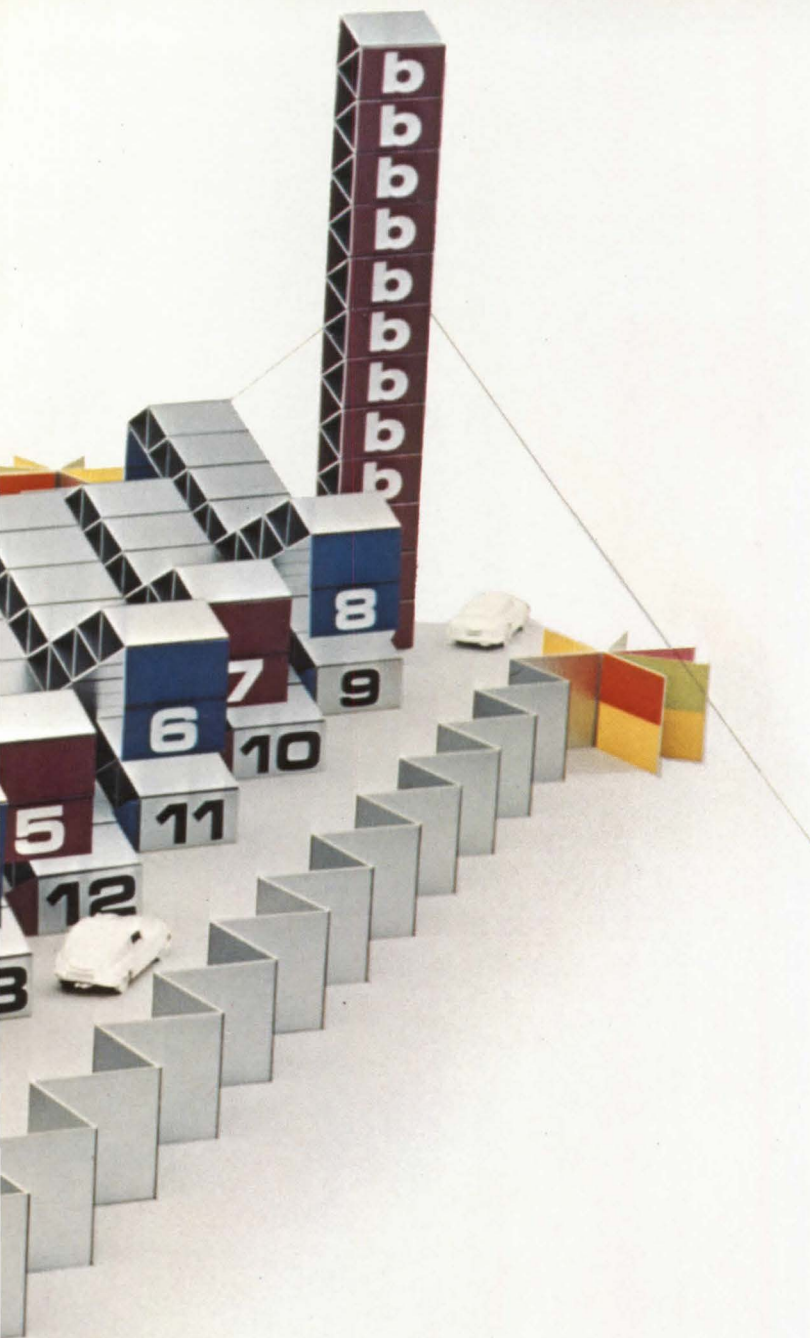
AN AUTOMATED DRIVE-IN RESTAURANT

by W.C. Muchow Associates,
Architects



One of a series of design innovations commissioned by Weyerhaeuser Company





Weyerhaeuser Company has commissioned a number of leading architectural firms to create design innovations which highlight the potential of wood in public and commercial buildings. This original design by W. C. Muchow Associates, Architects, Denver, Colorado, is the 18th in the series.

"We propose a structure that attracts customers by its appearance and by the unique nature of the services it offers."

Most drive-ins, unfortunately, resemble the wreckage of a conventional restaurant. The dining room is either altogether lost, or at least foreshortened, and what remains is a stubby kitchen adrift in a sea of asphalt.

Or, if it's a newer establishment, the design resembles a shake-shingled parody of a suburban cottage, hidden by its assertive partner, the great and gaudy sign.

We believe it most curious that drive-in restaurant design so seldom uses structure visually and operationally to attract and entertain customers.

And we propose a drive-in design in a contemporary idiom, based on a universal "building block" fabricated with an aluminum-faced plywood.

The restaurant would attract customers through unique services, including:

1. Choice and convenience. The customer could remain at his car and be served instantly by large-capacity, automatic, coin-operated vending machines housed in the structure.
2. Entertainment. While eating, the customer could watch any of several film shorts projected on a private screen directly in front of his car. The film would be selected and activated from the vending machine panel, in a manner similar to the operation of a "juke-box."

W. C. Muchow

Automatic vending machines provide instant food service. Console operates movie projector from vending machine area.

Rear screen projection system gives individual viewing at each stall.

Angled stalls fit traffic flow, adapt structure to narrow site.

Tower sign.

Screen wall.

Advertising kiosk.

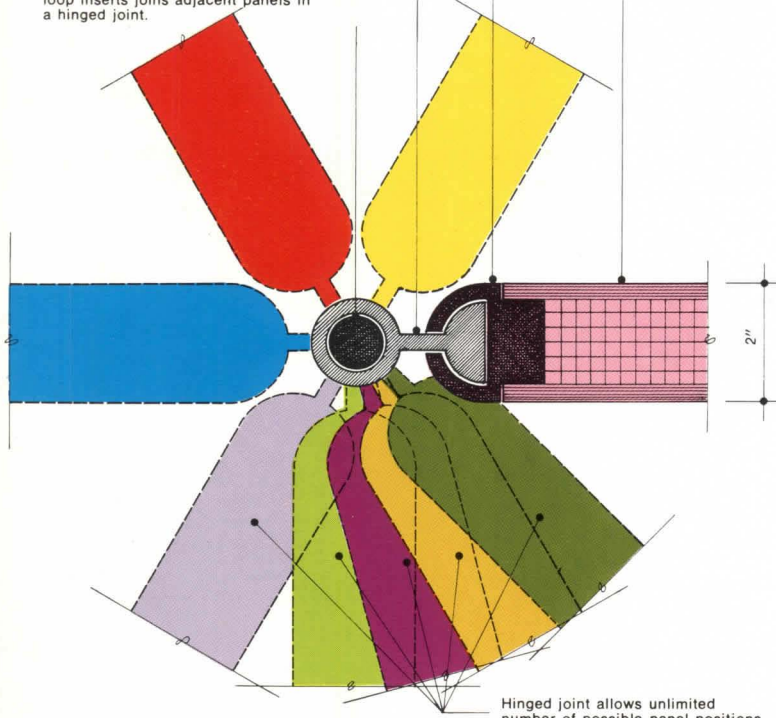
Panel 15 sun shades, deep overhang provide privacy.

1. 5/16" Prefinished Siding/Panel 15 laminated to honeycomb paper core.

2. Aluminum edge trim factory-applied to four edges of panel. This trim has continuous slot for job attachment of loop inserts.

3. One-inch-wide aluminum loop inserts job-applied by slipping into aluminum edge trim slot and twisting 90 degrees.

4. Steel pin key job-applied through staggered loop inserts joins adjacent panels in a hinged joint.



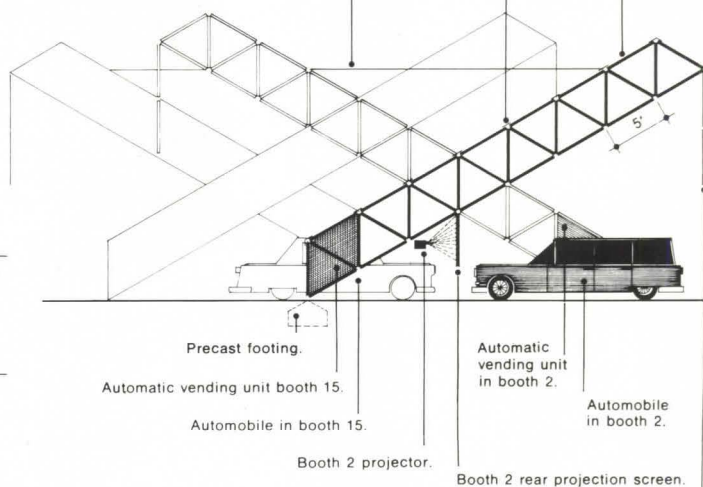
Typical joint.

Hinged joint allows unlimited number of possible panel positions.

Exposed joints covered with Panel-15 trim accessories with roofing tape laminated to rear sides.

Steel tension cable with turnbuckles.

Truss constructed of Panel-15 core panels—all panels are 5' x 10' x 2".



Precast footing.

Automatic vending unit booth 15.

Automobile in booth 15.

Booth 2 projector.

Automatic vending unit in booth 2.

Automobile in booth 2.

Booth 2 rear projection screen.

Hanging Panel-15 core panels form sun screen and provide base for booth identification graphics.

"First we designed a basic building block. Then, the restaurant."

The single building block can be used with other such units in unlimited combinations to construct walls, roof, tower, kiosk and display systems.

Thus, one business could use the system for structures with almost no resemblance to those of his competitors — even though the competitors were using the same building block. It's like a brick — except that brick cannot

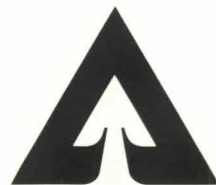
be used to span horizontal space. The material is Weyerhaeuser® Prefinished Siding/Panel 15, in 5' x 10' size. Thickness, 5/16".

At Weyerhaeuser, we do everything possible to make this kind of inventive application of our products possible. For example, we can provide Panel 15 in the size required here — and in virtually any color required, including a full range of colors to match

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Weyerhaeuser

(On reader service card: Circle No. 308.)

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. . . because proper soldering of stainless steel requires an extra step of pretinning or use of corrosive fluxes. These fluxes must be removed after soldering to prevent attack on the stainless. TCS solders perfectly using a non-corrosive rosin flux. Pretinning is unnecessary.

. . . because architectural metals are subject to corrosive attack in severe chemical, industrial or marine environments.

TCS enhances the proven ability of stainless steel to resist corrosive attack under these conditions.

. . . because the reflective surface of stainless steel may sometimes be undesirable in architectural applications.

TCS weathers naturally to a predictable, uniform and attractive dark gray. If color is desired, it can also be painted.

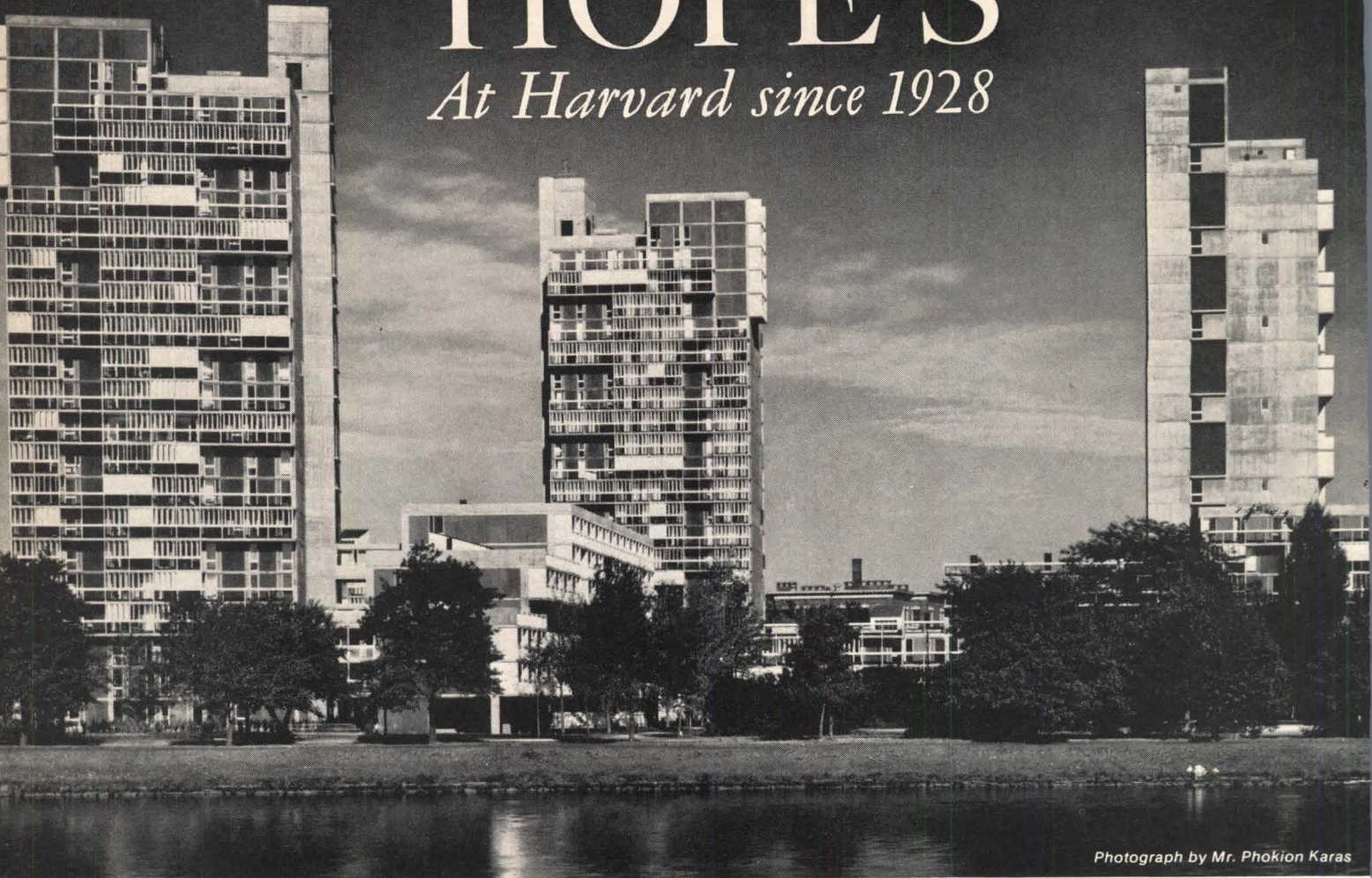
TCS, Terne-Coated Stainless Steel, is 304 nickel-chrome stainless steel covered on both sides with terne alloy (80% lead, 20% tin). It is a product of Follansbee Steel Corporation, Follansbee, West Virginia.

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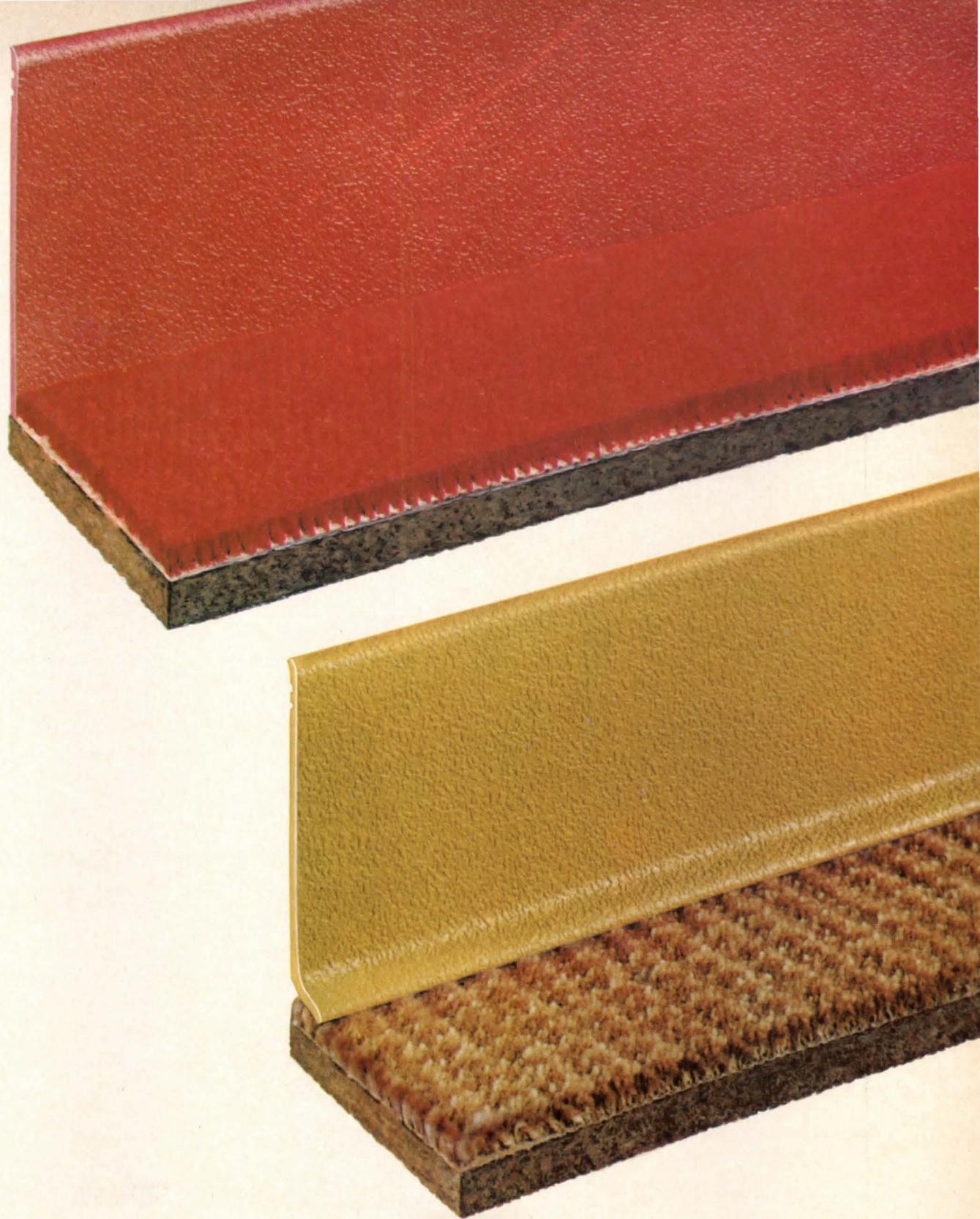
Photograph by Mr. Phokion Karas

1963 Francis Greenwood Peabody Terrace, Married Students Housing, Harvard University, Cambridge, Mass. Sert, Jackson & Gourley, Architects

In 1928, the architectural firm of Shepley, Rutan & Coolidge specified Hope's windows for installation in Langdell Hall, Harvard University. A partial list of buildings at Harvard in which Hope's windows were specified and installed in the following forty years is recorded below. We are proud of this record of continued confidence.

- | | |
|---|---|
| 1928 Langdell Hall (Addition)
<i>Architects: Shepley, Rutan & Coolidge</i> | 1960 Andover Hall Library — Harvard Divinity School
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1937 Lowell House and Eliot House
<i>Architects: Coolidge, Shepley, Bulfinch & Abbott</i> | 1961 Arnold Arboretum Head House
<i>Architects: Griswold, Boyden, Wylde & Ames</i> |
| 1949 Botanic Garden Apartments
<i>Architects: Des Granges & Steffian</i> | 1961 Gordon McKay Applied Science Laboratory
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1949 Graduate Center
<i>Architects: The Architect's Collaborative</i> | 1962 David & Arnold Hoffman Laboratory of Experimental Geology
<i>Architects: The Architect's Collaborative, Inc.</i> |
| 1951 Gordon McKay Applied Science Laboratory
<i>Architects: Coolidge, Shepley, Bulfinch & Abbott</i> | 1964 Computing Center, (Alterations & Additions)
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> |
| 1953 Observatory
<i>Architects: Harvard University</i> | 1967 Law School Faculty Office Building
<i>Architects: Benjamin Thompson & Associates, Inc.</i> |
| 1958 Quincy House
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> | 1968 Law School Classroom & Administration Office Building
<i>Architects: Benjamin Thompson & Associates, Inc.</i> |
| 1959 Leverett House, New Dormitories
<i>Architects: Shepley, Bulfinch, Richardson & Abbott</i> | |

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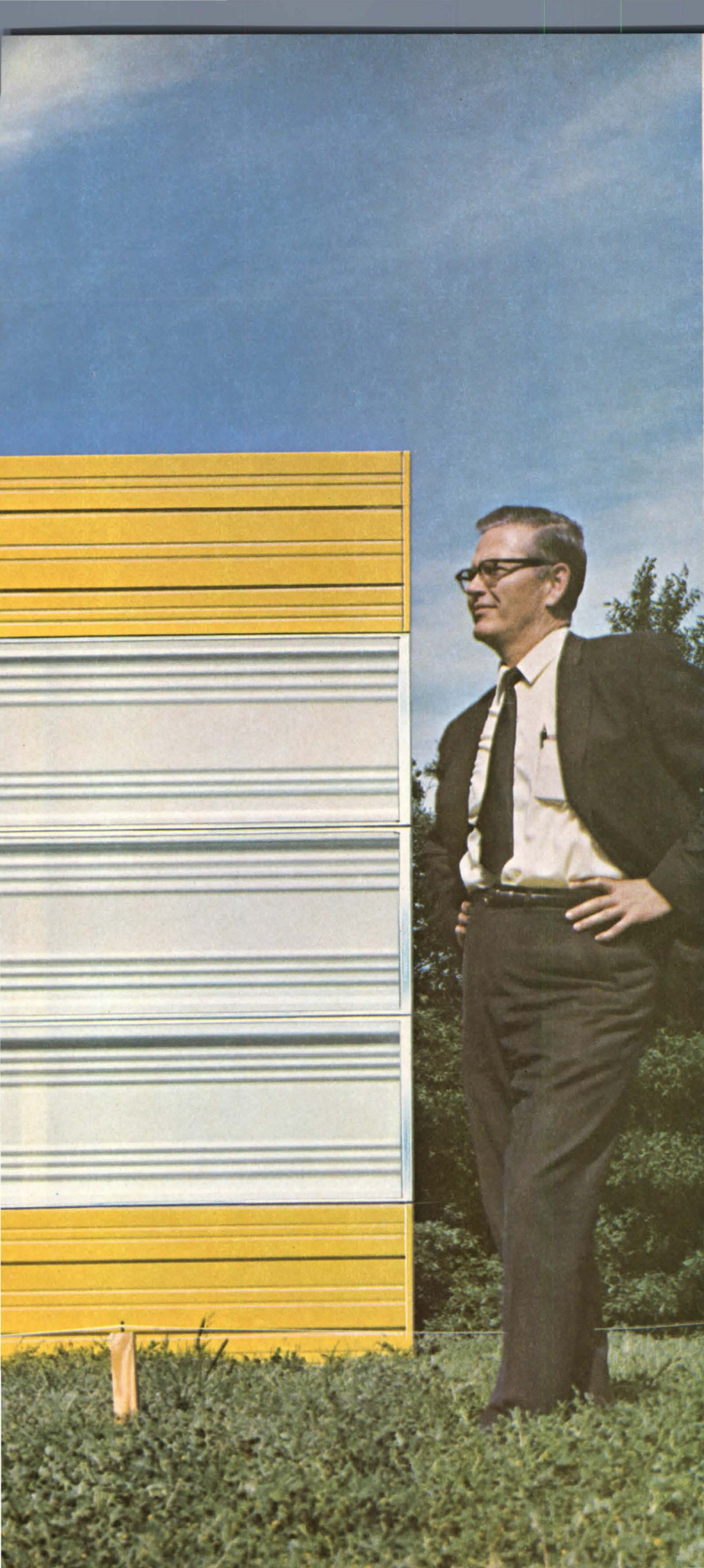


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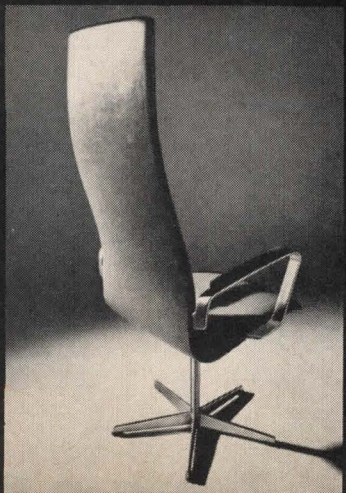
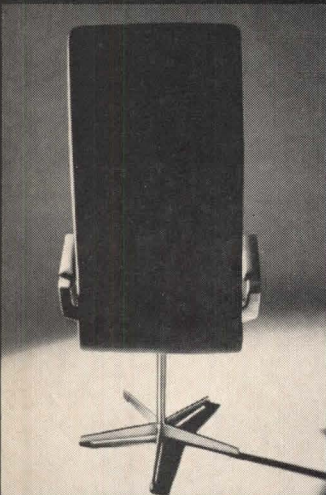
On Readers' Service Card, Circle No. 358



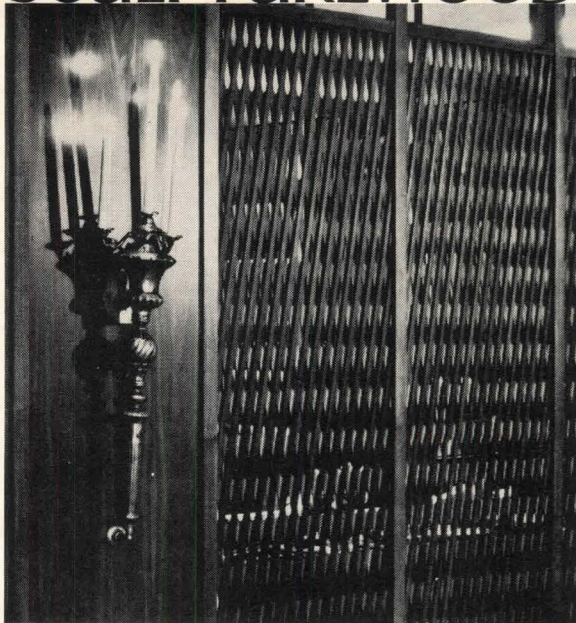
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MARCH 1969 P/A

◀ On Readers' Service Card, Circle No. 340



Kern Plaza, El Paso, Texas

Architects: Fouts, Langford and Associates, El Paso, Texas

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**...IN THE RESTAURANT
WHERE PEOPLE COME TO EAT, DRINK, AND BE MERRY...
TO SPILL FOODS AND BEVERAGES...
TO DROP LIGHTED CIGARETTES ON THE CARPET**

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A few months ago, conventional carpeting had covered the floor of Pippie's Restaurant in Hartford, Conn. Problems developed. Lighted cigarettes were carelessly dropped on the carpet and delectable foods and beverages were accidentally spilled.

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Today, Pippie's Restaurant is carpeted with Heugafelt.

Lighted cigarettes still fall, but Heugafelt shrugs them off without a trace of scorch or burn. Foods and beverages still spill, but Heugafelt carpet squares can quickly be removed and washed under running

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Don't you know a restaurant where Heugafelt should be the carpet du jour?

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Write us a brief letter—100 words or less—describing a flooring problem that could not be solved by conventional carpeting. If your problem is selected to be featured in future advertising, your Heugatile carpeting will be installed **free** of charge. Don't wait! Tell us your carpeting problem today! Mail entries to: The Problem Solver, Van Heugten U.S.A., Inc., 185 Sumner Avenue, Kenilworth, New Jersey 07033.

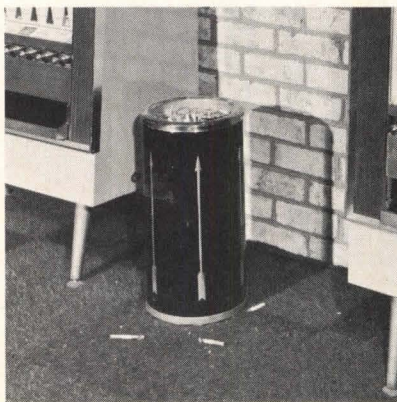
Heugatile carpet squares are unconditionally guaranteed to remain in place . . . will not curl . . . will not buckle . . . will not shift under foot, wheel, vacuum or cleaning machinery when installed according to the laying and maintenance manual.

Everything about new Heugatile is different, even the name. Heugatile (You-Ga-Tile)—the unconventional carpet.

See Heugatile specifications in Sweet's 1969 Architectural and Interior Design Files.



WEAR. This is conventional carpet. But new Heugatile solves this problem. First, Heugatile is longer-wearing by actual tests. Second, Heugatile carpet squares are loose-laid and totally-interchangeable so squares can be rotated—annually, for example—to retard the development of wear patterns.



BURNS. Are cigarette burns ruining your present carpet? Then you need Heugafelt, one of three fine Heugatile carpet products. Heugafelt shrugs off cigarette burns without a trace of scorch! Thus, Heugafelt is ideally suited for installations in restaurants, hotels, motels, stores, banks, and offices.



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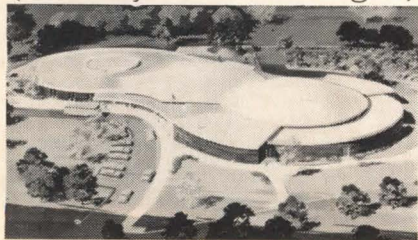
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School Board chooses Gas heat over

(That's just on first costs.
So it's just first savings.)



Architect: Sigman & Tribbie, A.I.A., Coshocton, Ohio
Engineer: Ballard & Assoc., Canton, Ohio
Mech. Contractor: Columbus Heating & Ventilating Co., Columbus, Ohio

The School Board of Ridgewood High in West Lafayette, Ohio got Gas and electric heat bids from independent contractors.

Here's what they found: Electric came in at \$2.59 per square foot for the 60,000 square foot school. The Gas bid was only \$1.95. The

difference adds up to a big \$38,200.

Another first-cost savings came from the \$15,000 that the school didn't have to spend on heavier wiring and the sophisticated controls needed with electric heat.

But the savings from Gas heat go on. Because the



electric and saves over \$50,000.

operating economy of Gas goes on for as long as you use it.

This school is no isolated case. There are many other studies that have proved the value of competitive bids when you want the best heating value.

So if you're looking for a heating system for a school or

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For school heating, Gas makes the big difference.

On Readers' Service Card, Circle No. 419

The power of attraction...

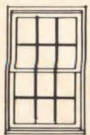


Designed and Fabricated by: Mid-America Homes, Inc., Crown Point, Indiana
Contractor: Miller Brothers, Griffith, Indiana

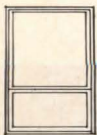


CARADCO Wood Patio Doors and C200' Casements

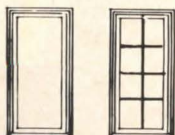
CARADCO Patio Doors and C 200 Casements are powerfully attractive to both single dwelling and multiple unit clients. C 200 Casements, for example, are double weatherstripped. Hinges are concealed. Insulating glass with vinyl glazing and removable vinyl grilles are featured options. CARADCO Patio Doors offer $\frac{7}{8}$ " insulating glass, complete weatherstripping and easy operation. For eye appeal and for satisfaction ... specify CARADCO: the best in windows and doors.



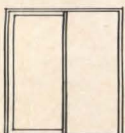
Double-Hung
Windows



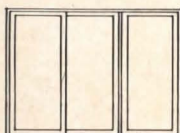
Awning
Windows



Casement Windows



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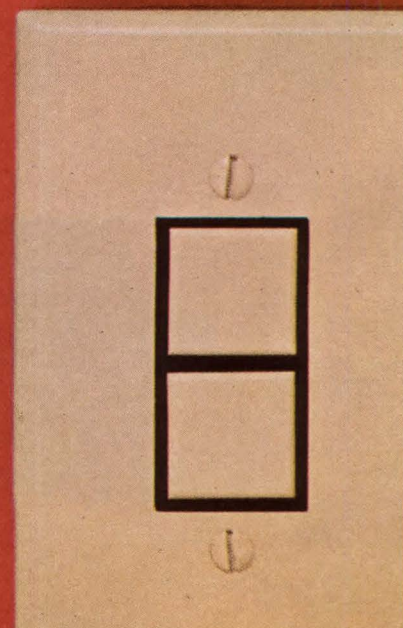
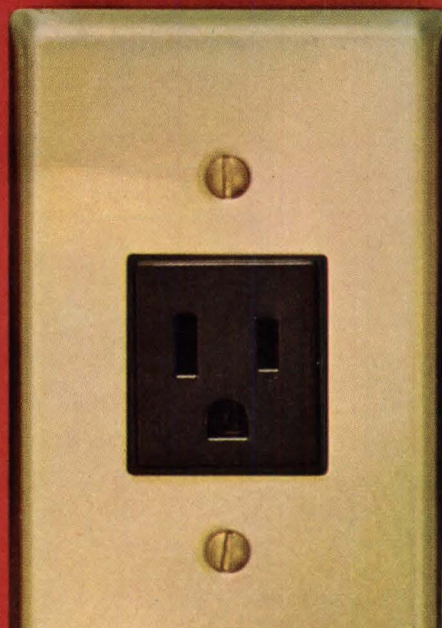
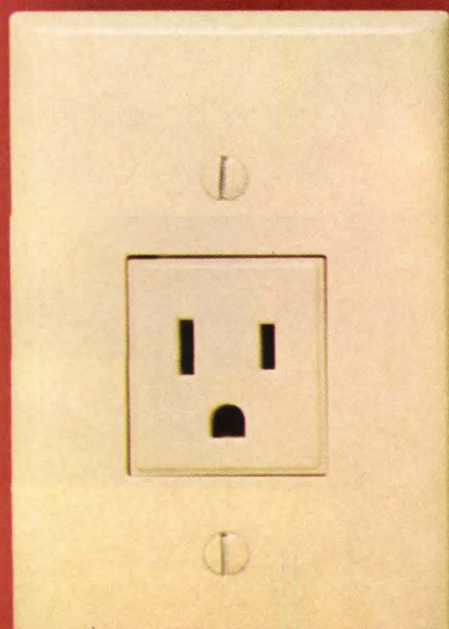
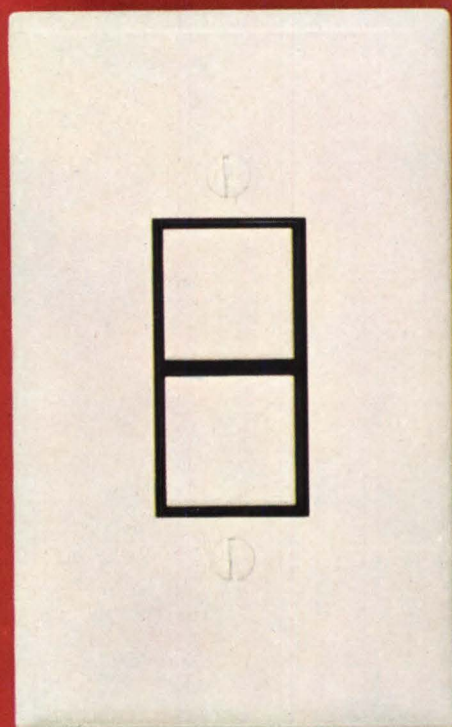
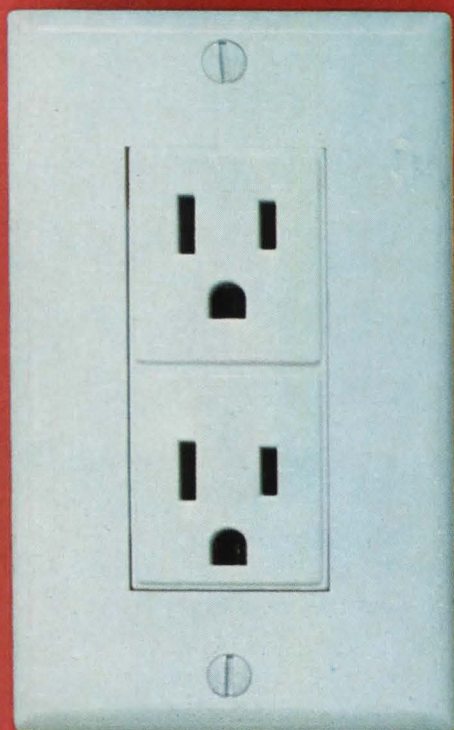
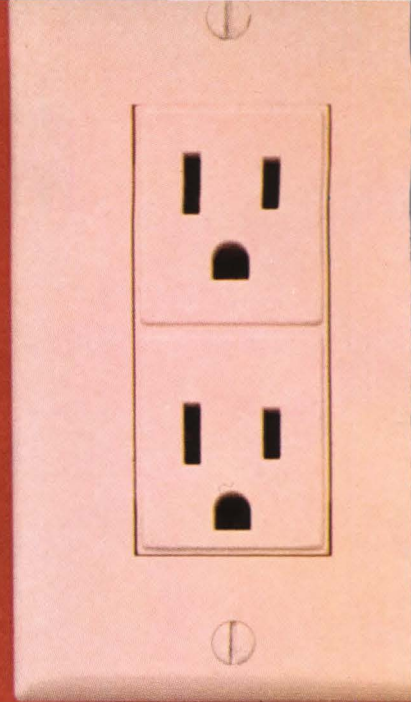
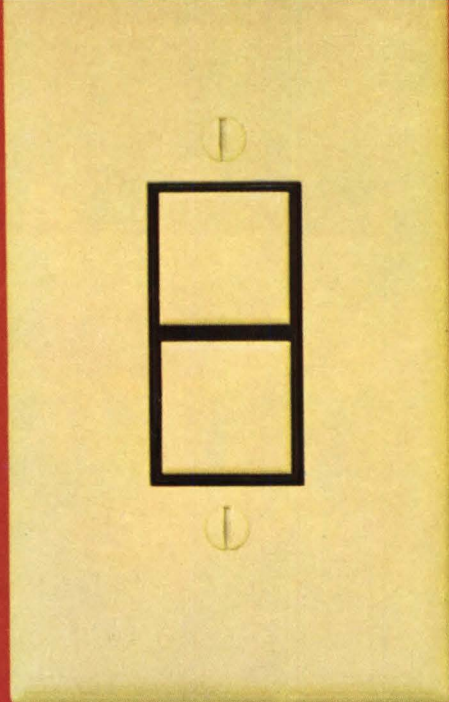
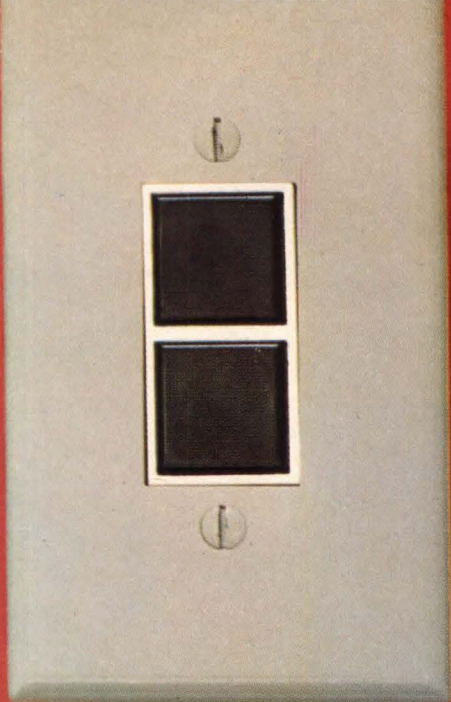
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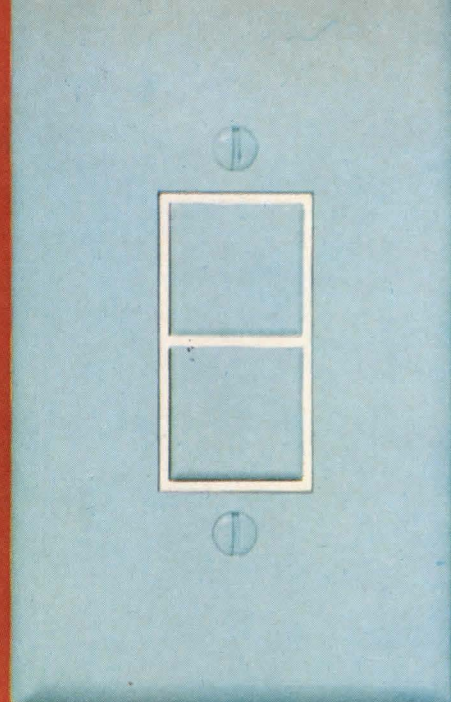
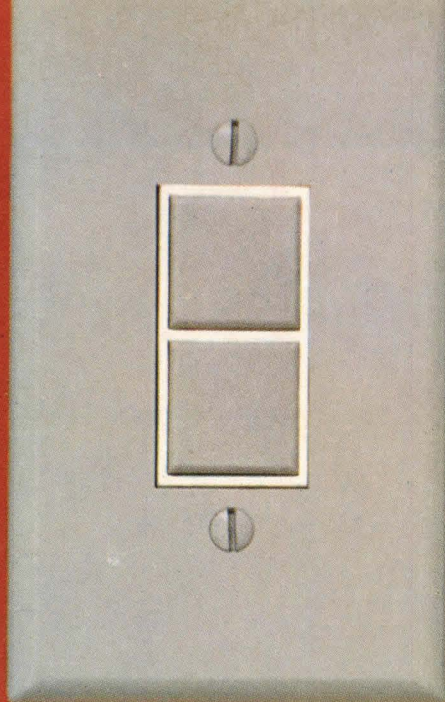
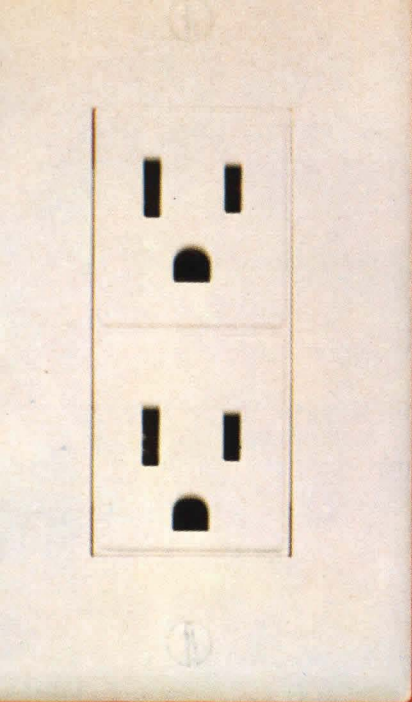
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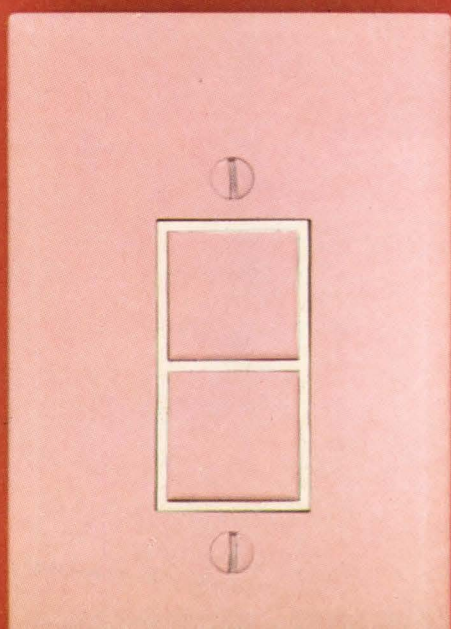
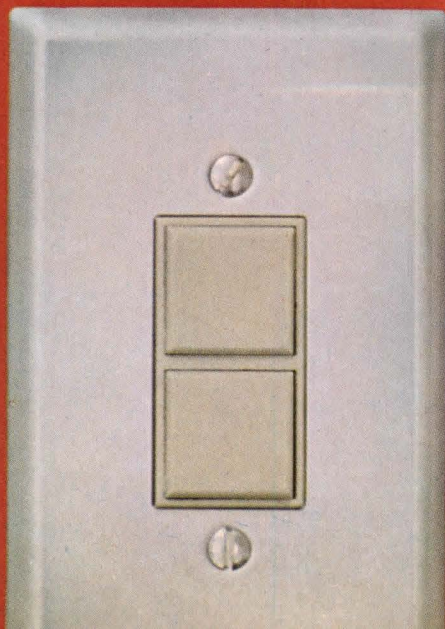
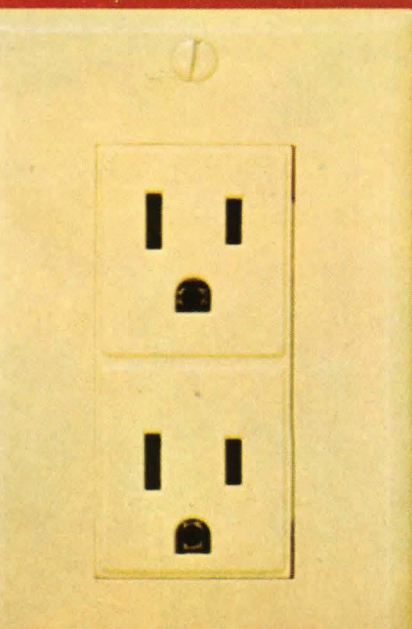
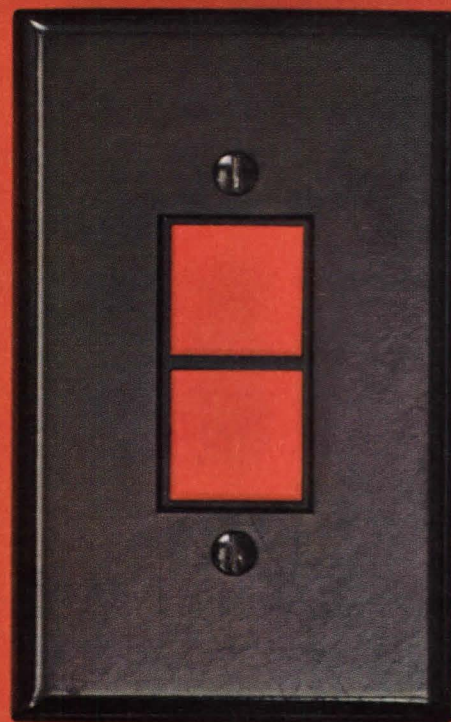
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Troy

March 1969 **PROGRESSIVE ARCHITECTURE**

"Architecture as we know it today — old-fashioned and senseless — will soon become obscure and distressing, for it is so completely inconsistent and contradictory to what it pretends to put in order."

ZVI HECKER

"We look at models and buildings through fish-eye lenses and other devices; we make films as other means of seeing things differently. Our Field Theory is a process of looking at things differently, too."

WALTER NETSCH



EDITORIAL

Editors of architectural magazines are privileged to watch the contest between man and his environment from a favored seat. It is not a permanent position. Magazines outlast editors and architecture outlasts them both.

Twenty years ago, shortly after the end of the Second World War, Tom Creighton became editor of P/A at a time when the odds favored traditional architecture in the environmental contest. There had been little building during the Depression, and a great deal of destruction during the war that brought back prosperity. We were filled with hope and an eagerness to build a peaceful world. Corbusier had even visited New York City to point out to Henry Kaiser the golden opportunity of producing assembly-line Modulor homes.

The future of architecture appeared to lie in simply taking up where it had left off in the late 30's. The problem appeared to be one of using available materials and technologies to attain a straightforward solution to the traditional problems presented, Creighton declared. However, this is not how the game was played.

After a tenure of 16 years, spanning the end of the New Deal, the Square Deal, the Korean War, and the Great Crusade, at the beginning of the Thousand Days, Tom Creighton stepped down from the Editorship. It had been, he said in summing up, a period that led to no final result except confusion, a degeneration into fantasy, prettiness, and deplorable urban monotony. However, the picture could not have been as black as painted, since Creighton left the Editorship to return to the practice of architecture.

When Jan Rowan took over as Editor, six years ago this month, he declared in his first Editorial that only a fixed ideology would despair in the current state of architecture. Rowan predicted the emergence of a new School of Architecture, but found instead an increasing emphasis on the environmental struggle. During the six years of Rowan's Editorship, four of which I had the privilege of serving as a member of his staff, we reported on an architectural profession that had never before experienced such problems and opportunities. At no time did Rowan refuse to seek out and document the condition of architecture, no matter what its implications for the profession. We reported technological and scientific developments such as the world in the third millennium, medical and educational philosophies that determine the design of hospitals and schools, the influence of computers and performance design, and, in a forthcoming issue, we will show how business managerial skills affect the environmental arena.

During Rowan's Editorship, we saw the tragic end of Kennedy's Thousand Days, the beginnings of the Great Society and its death amid burned thatched huts and mangled peasant bodies in Vietnam. We also saw the emergence of a new client, whose program requirements were emphasized in the gutting of our inner cities. Corbusier's idealized Modulor could no longer be predicated upon an idealized 6-ft Englishman. It was now scaled to highway clearance; the 12-ft dimension of a mobile-home unit, as architects grappled with the problems of prefabricated housing.

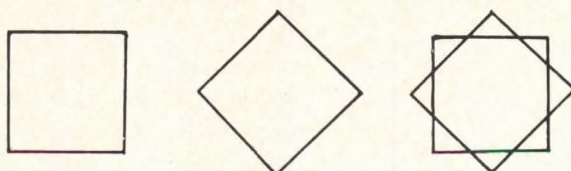
As I begin my tenure, the third Editor of PROGRESSIVE ARCHITECTURE in 22 years, it is at a time when the traditional role of the architect as the mediator in the contest between man and his environment has never been more in question. The emphasis in the environmental game has shifted from the virtuosity of the individual player, such as Corbusier, to the design team concept, the field and the stadium as the environment, and even a questioning of the validity of the game itself.

None of us know what is ahead during the coming years, I no more than Creighton or Rowan. However, I am sure we at P/A will not be charged with the job of reporting the demise of the architectural profession, as some have predicted. I believe that the confusion current in the profession is not aimlessness but rather the result of unlimited possibilities. It has been a long time in history since architects have thought of designing cities or omnibuildings.

In the inevitable reshuffling of environmental responsibilities now taking place, there is no doubt in my mind that an architectural education will prove the indispensable discipline in humanizing environmental conditions. ■

Farrest Wilson

FORMS AS PROCESS



"We keep trying to find new ways to see things," architect Walter Netsch says of the design group at Skidmore, Owings & Merrill, Chicago. "We look at models and buildings through fish-eye lenses and other devices; we make films as other means of seeing things differently (p. 96). Our Field Theory is a process of looking at things differently, too."

"Field Theory" as defined by *Webster's Third New International Dictionary*—anyone who has heard Walter Netsch talk will not be surprised by his choice of academic terminology—is "a method of analysis in behavioral science that describes actions or events as the resultant of dynamic interplay among sociocultural, biomechanical, and motivational forces."

The architectural connotation of the term Field Theory for Netsch and the design group is, similarly, a planning analysis based on human functions. Since the term also refers to optical fields, the planning process manifests itself as a fluid, manual manipulation of geometric forms. A "field" is the spatial unit or "environmental module" that the architects use to compose a building.

Field Theory Planning. Clearly influenced by the ascendancy of the diagonal, Netsch and his colleagues have planned buildings over the past six years with basic square bays through which they envision an X formed by diagonals. Sometimes they add a smaller concentric square within the larger square. Sometimes they superimpose on the larger square an identical square and rotate it—that is, turn it diagonally. This manipulation provides the basic grid patterns of their structures. Most recently, the process has produced star-shaped fields as the over-all modules of



Photos: Linda Fritts

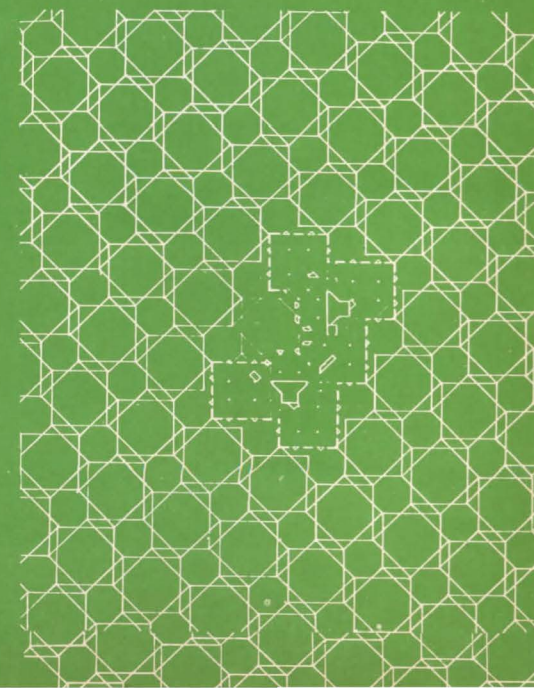
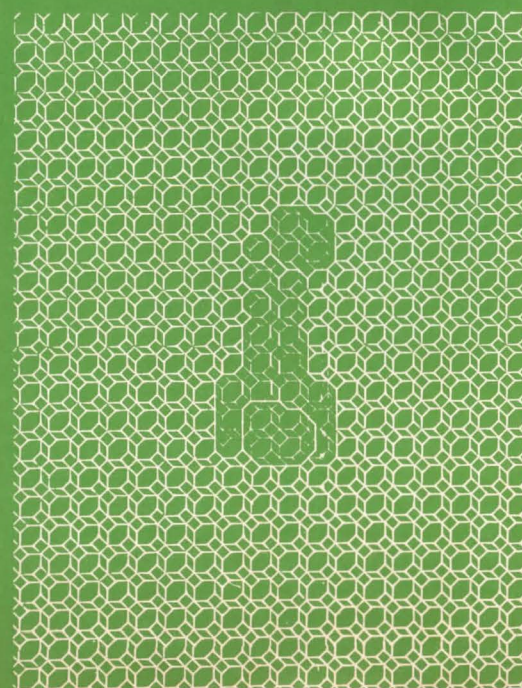
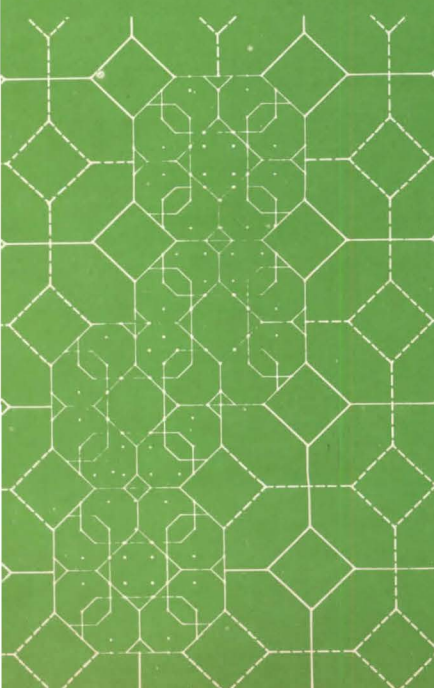
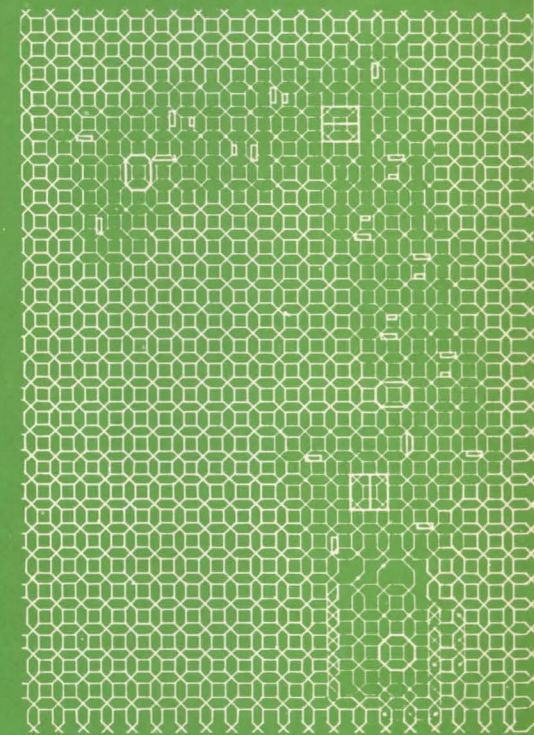
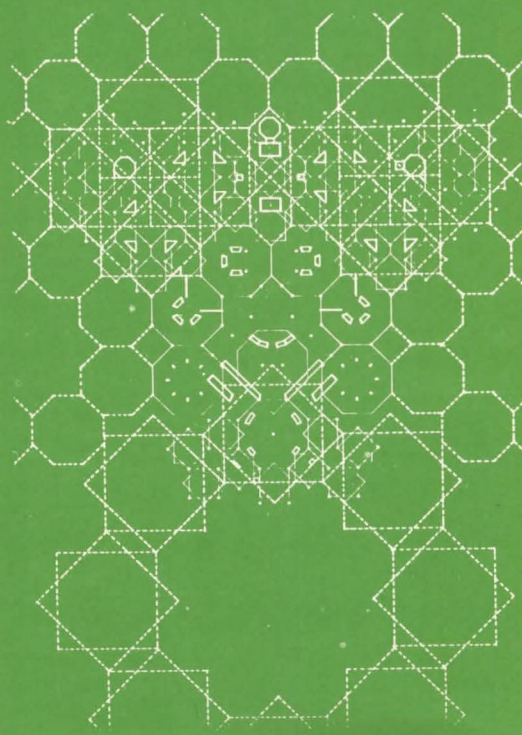
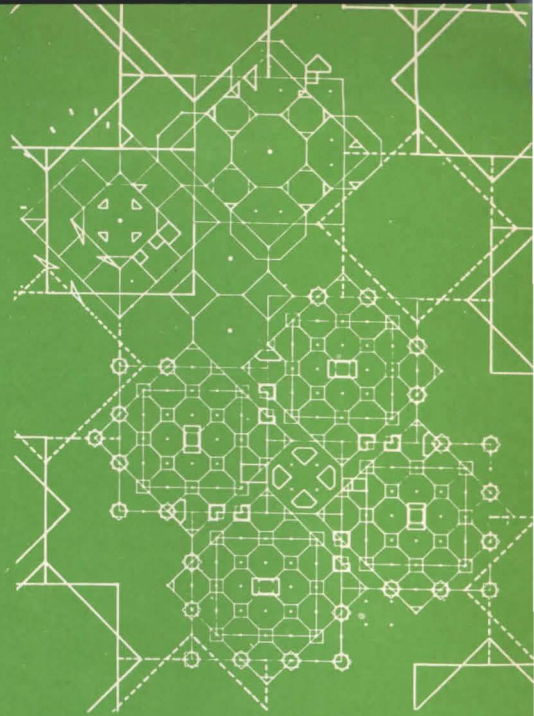
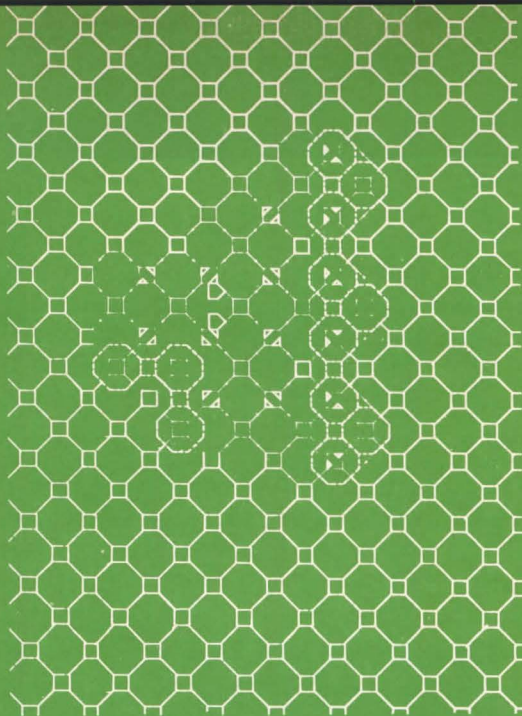
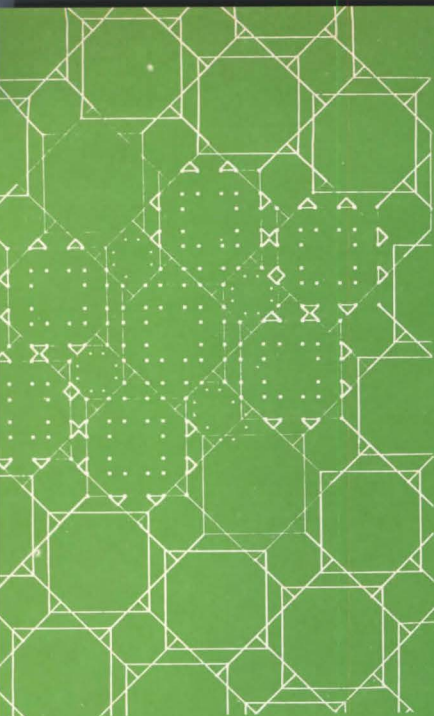


their buildings. By truncating, or cutting off, the projections on the stars, octagonal forms are created. Repeating this procedure with a smaller inner square or with larger squares outside the bays, and by combining the star-shaped field, the architects arrive at a "lattice" pattern of interlocked lines. In Netsch's view, the lattice creates "a linear expansion of the progression of different activities and communications for which the building is used," so the behavioral science basis of the theory is valid to him.

To facilitate visualizing these superimposed patterns, the architects have devised a series of acetate overlays covered with various elements of the lattice. With two acetate patterns of separate squares, one layed over the other, they can visualize the rotation of the forms to achieve their lattice and star-shaped units. With two acetate sheets of interconnected larger and smaller squares, they can slide the patterns along to arrive at more complicated lattice systems of squares-within-squares. These simple acetates are Netsch's basic tools for Field Theory. The technique of superimposition is totally modern (photos left).

The process produces an organizing design discipline along whose lines all partitions, and, ultimately, furnishings, are laid out. The lattice system indicates all the available options for complicated design layouts, which may not be immediately perceivable with simple squares or single rectangles.

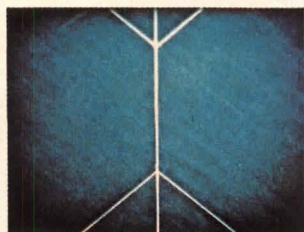
"Field Theory, as a system of way of looking," Netsch explains, "assumes that all actions are not linear, that all forms must be additive, that plans need not be orthogonal (straight-lined) to be useful or active. Field Theory is network oriented rather than structure oriented. It is iconic, volumetric, and spatial."



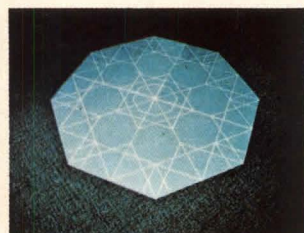
FIELD THEORY FILM ON LAB PLANNING

An Animated Color Movie
Designed by Skidmore, Owings & Merrill,
Architects
Produced & Directed by
Walter A. Netsch, Jr.

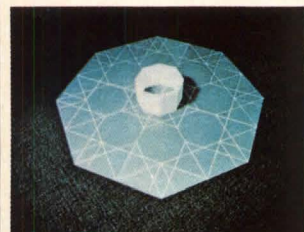
Designed by Maris Peika and Will Rueter



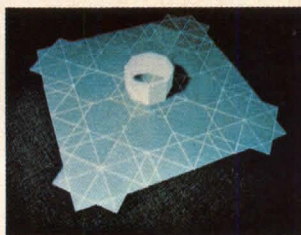
[Soft focus fade-in on white "Y," which resembles the symbol of man, against a blue field.]



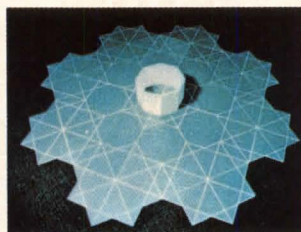
1 [Camera pans back to show that "Y" was a detail of larger white lattice superimposed on blue octagonal field.] Film is a study to apply systems analysis to a building and its furniture and to combine that with the use of Field Theory. Netsch felt that film was more suitable than drawings to introduce these two concepts.



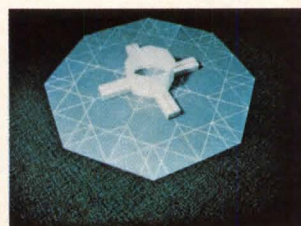
2 [Octagonal field is rotated and a white, central service core is added.] Three SOM laboratory buildings and their furniture are objects of this filmed analysis: Basic Sciences Building, University of Iowa; Science and Engineering Center, University of Illinois; and Biological Sciences Building, Northwestern University.



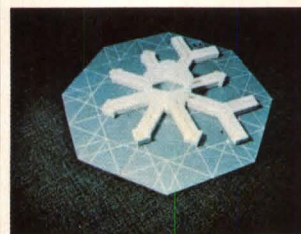
3 [Subsquares are added onto the corners of the basic octagon.] For the three buildings, the film examines the options to find what architect Netsch calls "a reasonable environmental module size" for a lab building — that is, a unit that would be large enough to form a suitable module yet small enough to provide privacy.



4 [Additional subsquares are added at the midpoints of the perimeter.] This first sequence illustrates the design options by manipulating a plan within the organizing discipline of the Field Theory. The film was made at the end of 1966 (in 16 consecutive hours; actual camera time, 1 hour 40 minutes). Running time, 4 minutes.



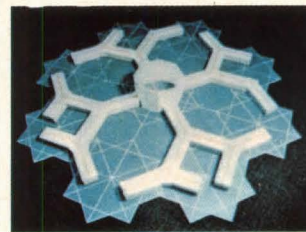
5 [Flashback to original primary octagon and central service core, to which white laboratory counter-cabinets are connected. Cabinets are sectional and additive, with plumbing services showing as a red spine down the middle.] The system recognizes the prohibitive cost of remodeling laboratory buildings.



6 [Component elbow cabinets are added and the counters extended in a radial pattern.] When scientists move to other institutions, laboratories designed especially for them are often left empty because remodeling is costly. "Labs must function for more than unique professors and unique situations at a single time," says Netsch.



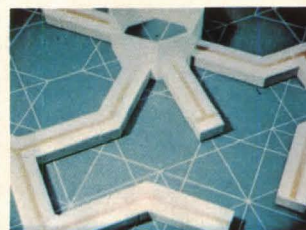
7 [Linear extensions of the cabinets are added when corner subsquares are added onto the octagon, as in Frame 4.] To find a means to permit inexpensive growth and change in laboratories, SOM/Chicago proposes this radial, additive furniture, which can create a series of work stations that are task oriented.



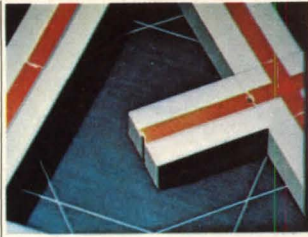
8 [A change in lab arrangement for other users is effected by adding subsquares to the space at the perimeter and by re-connecting the radial and linear extensions of the cabinets and their integral plumbing system. Furniture reaches into the subsquares to produce sub-labs within the larger labs.]



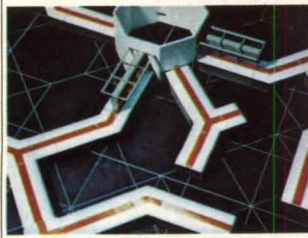
9 [On the same plan as in preceding frame, a new arrangement of plug-in cabinets shows a more open environment.] In all these schemes, primary circulation is outside the basic large octagon, which is the "environmental unit."



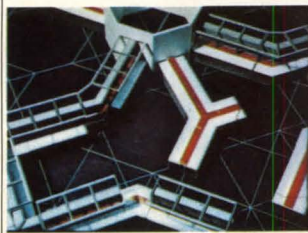
10 [Close up of plug-in cabinet components shows linear units, elbow units, and T-ends.] The circulation theory is that one can maintain a basic corridor system and thereby permit variety for changing and shifting the furniture arrangements without extensive remodeling of the basic environmental module.



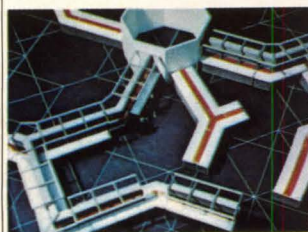
11 [More extreme close-up shows additive cabinet units with their red utility spines; they are set off against the blue octagonal field.] "Field Theory" refers to an optical field, the environmental unit.



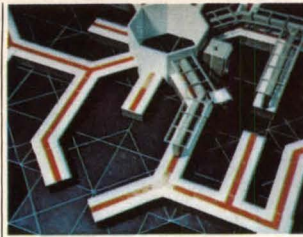
12 [Upright plumbing service connections and overhead lighting are added onto the cabinet system.] Lighting system, like plumbing, uses plug-in-additive components. Electrical and plumbing umbilicals go back to the center core for most efficient operation. However, there are limits, such as the 40-ft limit for waste lines.



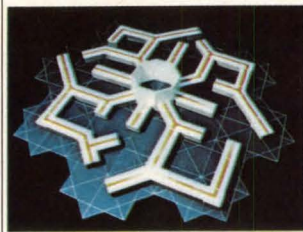
13 [More lighting and service are added along the component cabinets. A lab scientist model appears.] The filmed demonstration, one begins to recognize, is faster and more coherent than drawings; in addition, more people can look at the presentation at the same time.



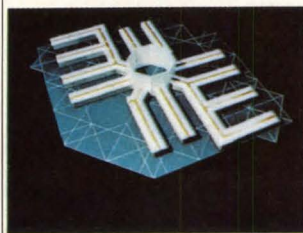
14 [The camera pans back to show more of the lab plan, and more scientists appear.] The initial problem with constructing the furniture components is the connection of the extendable pipe services. This joint should be a coupling so that units can be as easily assembled as railroad cars.



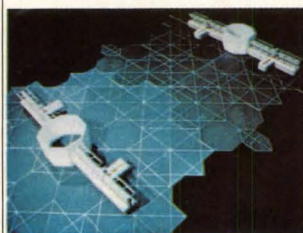
15 [Other equipment, such as refrigerators or centrifuges, appears against the core of a new lab arrangement.] The following sequence shows the available options within the design organization that Field Theory offers.



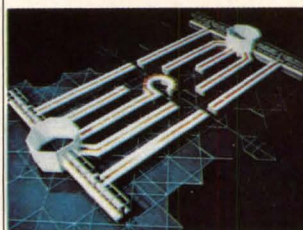
16 [Flashback to the stripped cabinets in a dense radial arrangement shows large lab areas with sub-labs.]



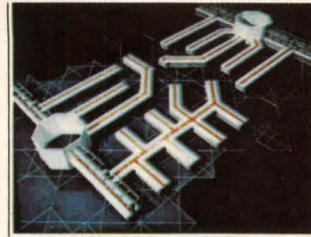
17 [A linear arrangement of the component system, as opposed to the previous radial arrangements, is shown.] Netsch calls the linear arrangements "orthogonal" (meaning "straight line") systems.



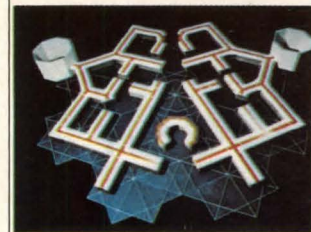
18 [Camera pans back to show two intermeshed octagons on which two cores with linear extensions of cabinets and lighting equipment are arranged to produce a mass teaching or research environment.]



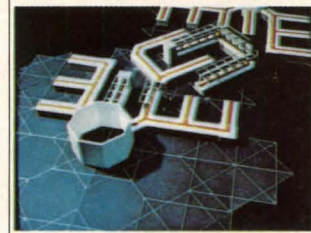
19 [Extensions of the cabinets in a linear plan provide additional facilities for teaching large numbers of students. A core-like demonstration platform is provided at the center of the plan.]



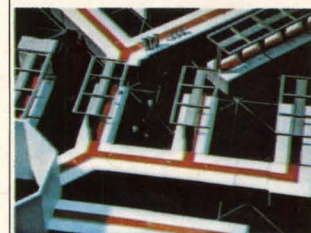
20 [Other "task-oriented" layouts for large groups of scientists can be made in cluster arrangements.]



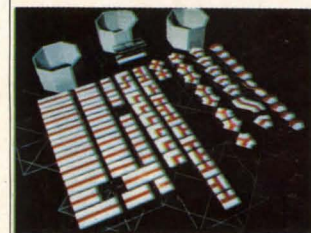
21 [Cores here are located "in the lattice position" — that is, on the periphery rather than at the center of the augmented octagon.]



22 [Close-up as camera moves in on two cores with linear extensions and sub-units between them.]



23 [As camera closes in farther, beakers and other utensils appear on the counters as two scientists engage in conversation.]

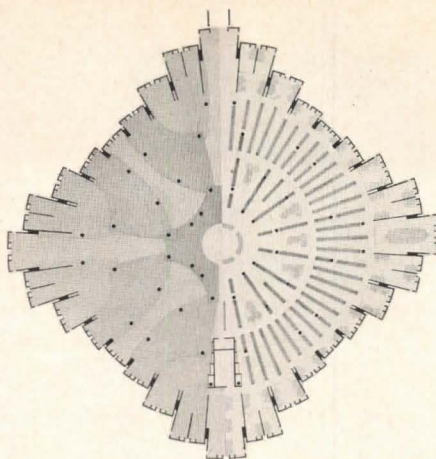


24 [For last sequence, camera pans back to show all components of the furniture system — linear, elbow, and cross-shaped units, with Y's, T's, and others. Various connections of these elements are demonstrated. Also, "the most important component" — man — is seen between linear cabinets, recalling the symbol of man that began the film.] — CRS

FIELD THEORY USE TO DATE

Field Theory developed in practice, not as pure theory. The architects had been working toward such a design system for some time before the tools and the procedure were formulated and before the term Field Theory was adopted.

The first of SOM/Chicago's buildings to break away from the simple rectangular grid was the U.S. Air Force Academy



Northwestern University Library.

chapel with its composite structure, the upper part of which utilized diagonals and tetrahedrons.

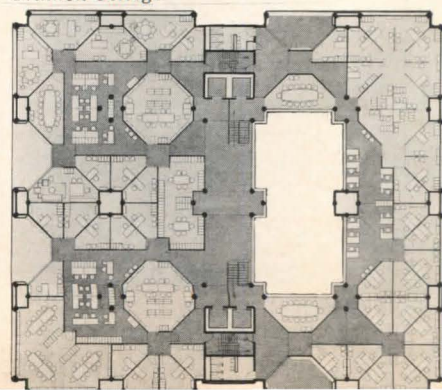
Next came a design for graduate housing at Northwestern University at Evanston, Illinois, which was never built, and subsequently the library for Northwestern University (left), which was announced early in 1964 (see p. 73, JULY 1964 P/A). None of the lattice is followed in the layout of the library's exterior walls, but the radial arrangement of stacks and study areas spreading outward from central information desks (see plan) clearly led to the planning considerations demonstrated in Netsch's Field Theory film made in 1966 (preceding page), which is a study for three Field Theory science buildings. In addition, the pavilions of the Northwestern University Library suggest the possibility of meshing their gear-edge perimeters in the way that the star-pointed forms produced by the Field Theory can be combined. (P/A will present the library when it is completed.)

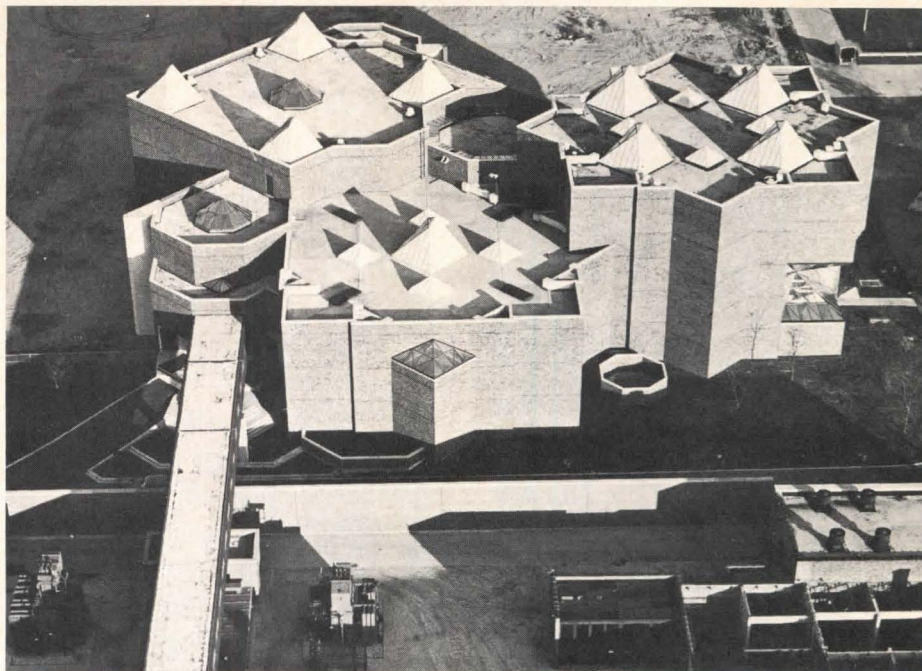
The first completed building to use elements of the theory was the "College Forum," a community social center, at Iowa's Grinnell College (see p. 118-125, "Grinnell's Social Geometry," DECEMBER 1965 P/A). The simple rectangular structure shows a lattice system reflected in its plan, layout, structural system, and even in section.

Next in the development of the Field Theory process came the design for the Art and Architecture Building at the Chicago Circle Campus of the University of Illinois. Announced in 1965, phase one of this so far incomplete building was opened this past October (with much-rumored student discontent). A&A has a spiral plan of interconnected star-form pavilions arrived at by Field Theory



Measurement Research Center, Grinnell College





Architecture and Art Laboratories, Chicago Circle Campus, Univ. of Ill.

planning. It is a remarkable building, a glorification of the corridor; it is completely ambiguous in its windowless circulation route, even mystifying and alienating (which was, no doubt, the cause of student unrest). The building is also rich with thoughtful and delightful details such as a perverse, baroque stair plan, which is arrow-shaped but which, contrarily, sends one in the opposite direction from the point of the arrow.

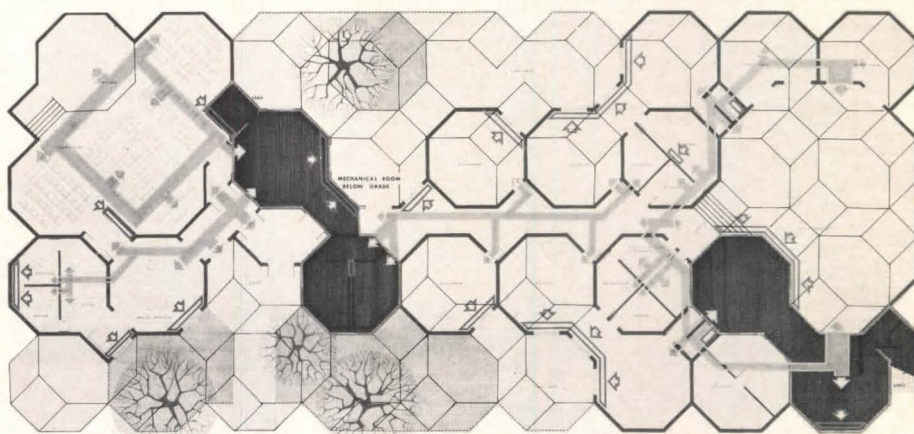
Then came the design and construction of the twin telescopes at Northwestern University (see p. 104), with their exposed space-frame structure reminiscent of Field Theory.

In this same period, the architects designed and built the recently completed Wells College Library, which was dedicated and opened at the same time as the A&A building, and which, with A&A, is one of the two first structures designed strictly by the Field Theory process. Since the Wells College Library is a completed building, unlike phase one of A&A, which is less than half the total design, the library is especially appropriate for detailed examination (see p. 108).

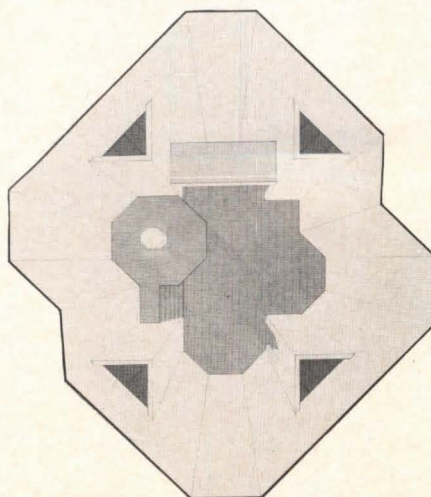
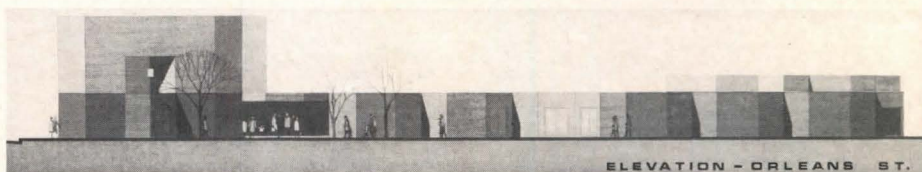
From that point on, Walter Netsch's design team has never looked back to other methods. They have refined their systematic design process, have developed more sophisticated tools, and have worked toward a greater fluidity of planning within what must appear to others as a still rigid geometric approach.

Recent Field Theory Project. Among the buildings planned with Field Theory are the seven new educational facilities and one church presented on these pages. A development in the planning, toward increasing complexity, can be seen.

For the University of Iowa, which became a new client when the former pres-



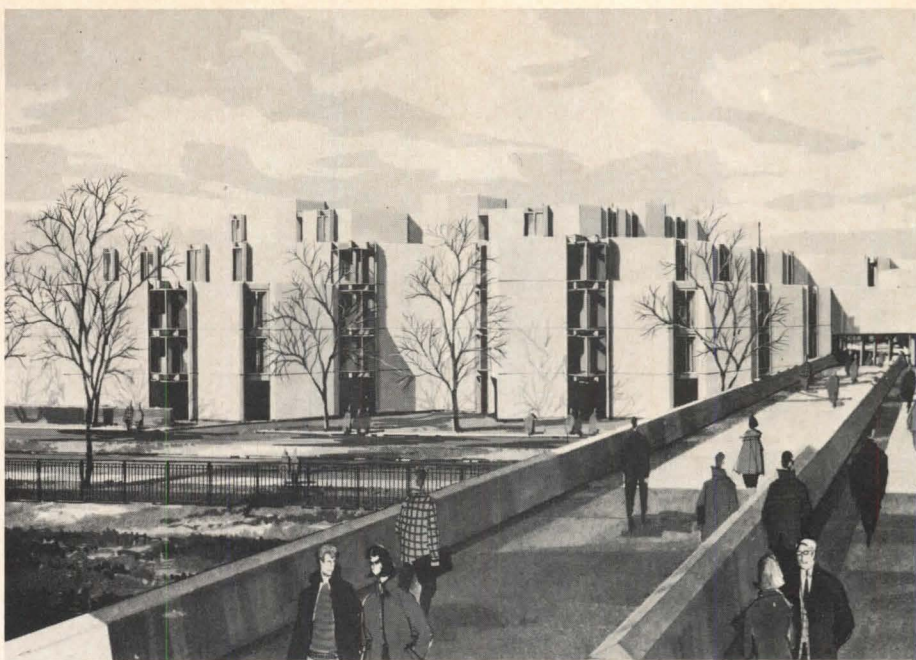
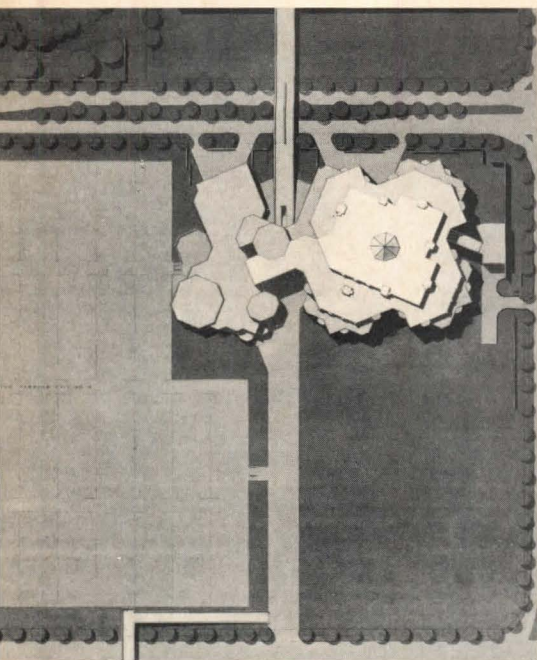
St. Matthew Methodist Church, Chicago.



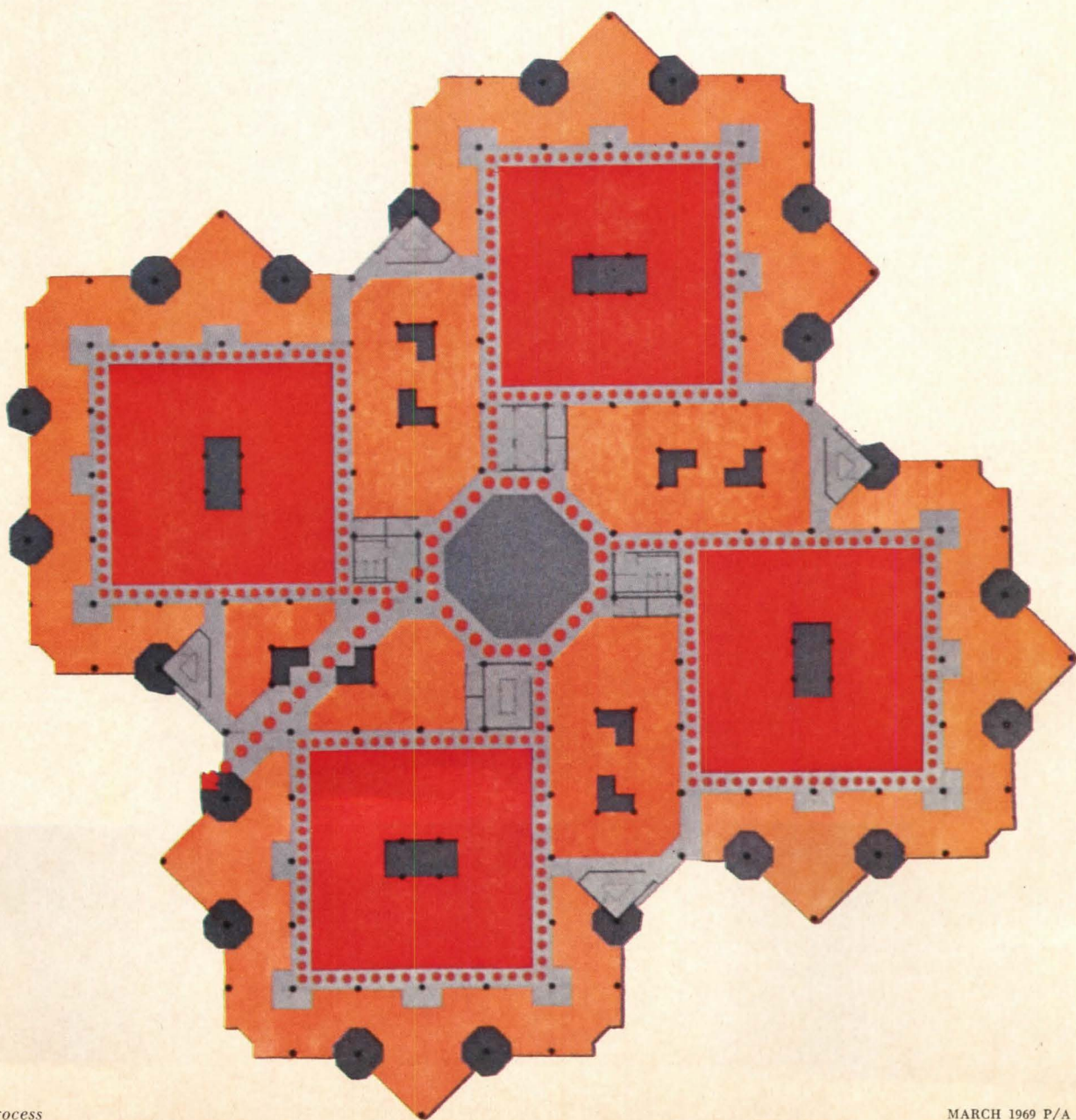
View of sanctuary from above.

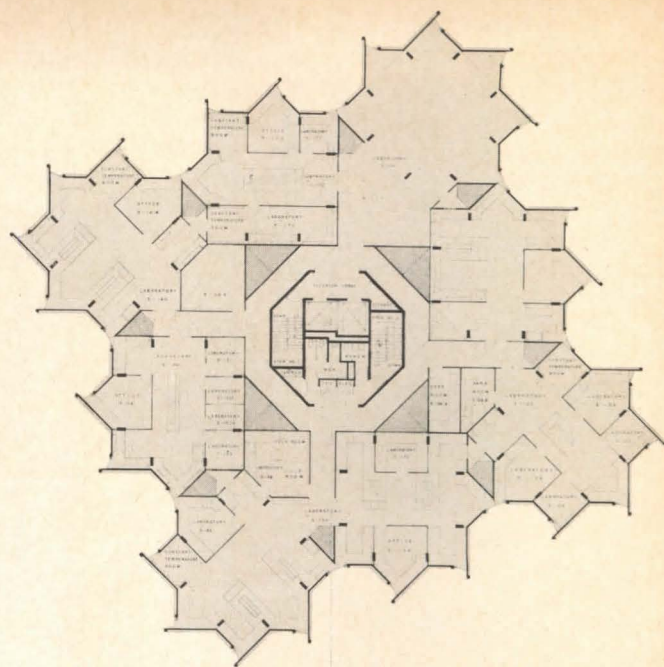
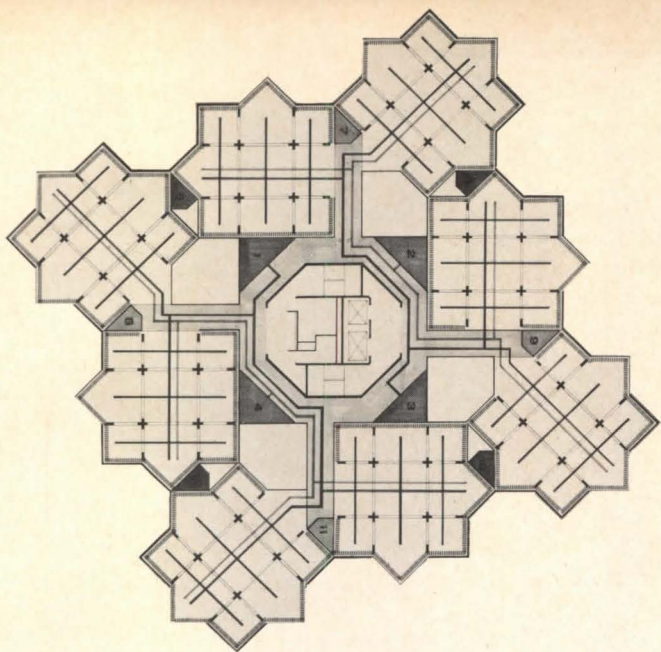
ident of Grinnell College assumed the presidency at Iowa, the Measurement Research Center shows the squared-off star-form bays of the Field Theory (facing page, right) — a system of bays not unlike the Grinnell College Forum. Relieved on the exterior only by negative corners, recessed entryways, and recessed wall panels, the building is to be unexpectedly simple on the exterior (facing page, right).

The projected Saint Matthew Methodist Church, Chicago, has a fairly regular series of adjacent but separate octagonal pavilions, each for ancillary facilities, with larger spaces for the sanctuary and fellowship hall being composed of several octagonal units. On the exterior, the notches between octagons produce a minimal sculptural effect (left).

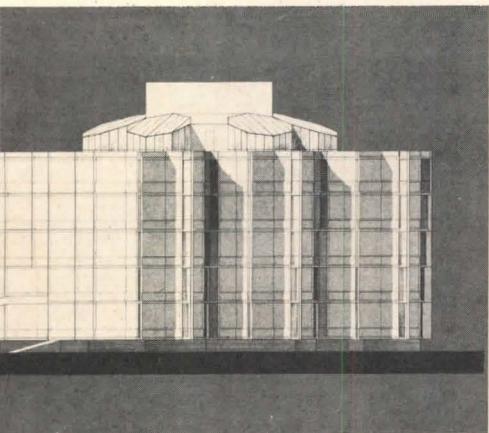


Science and Engineering Center, University of Ill.





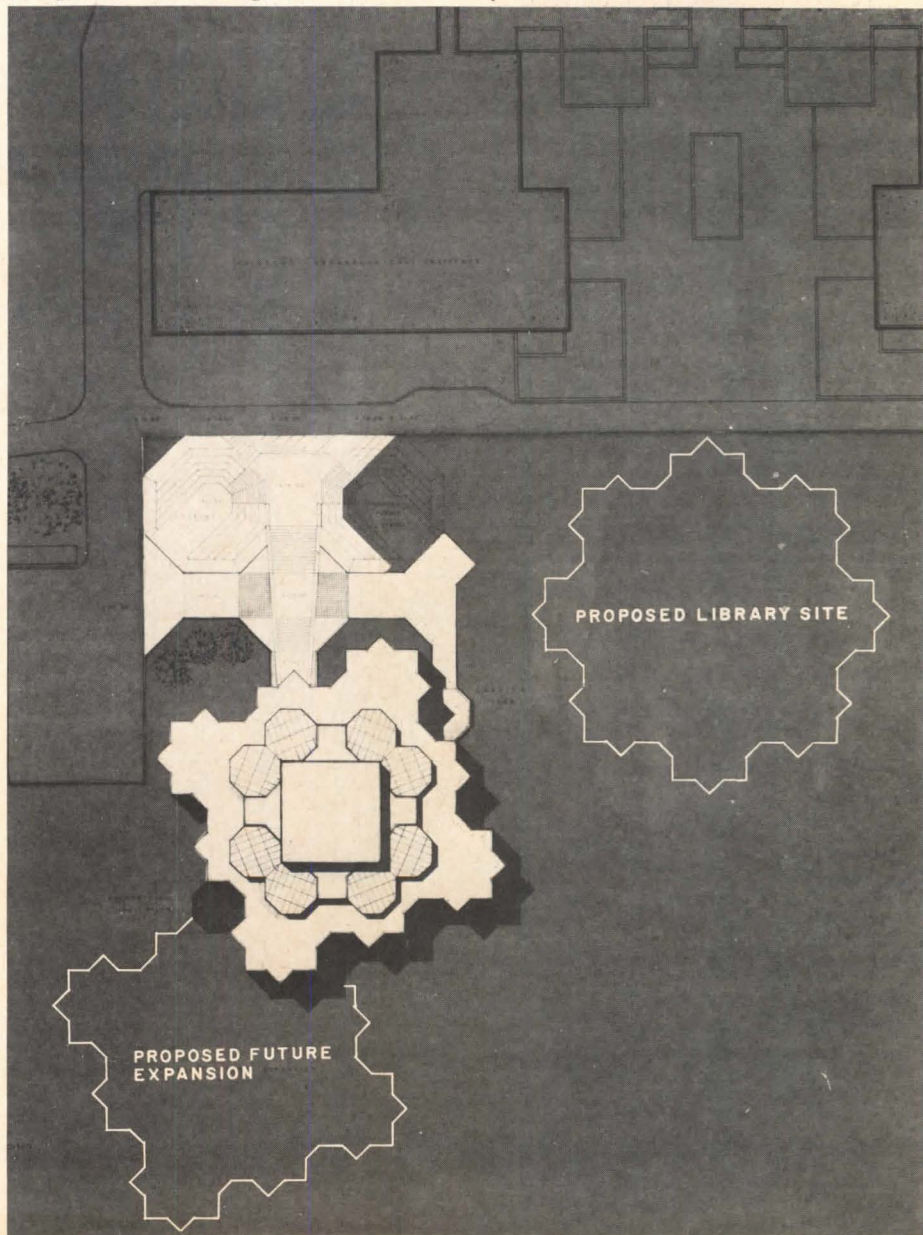
Biological Science Building, Northwestern University.

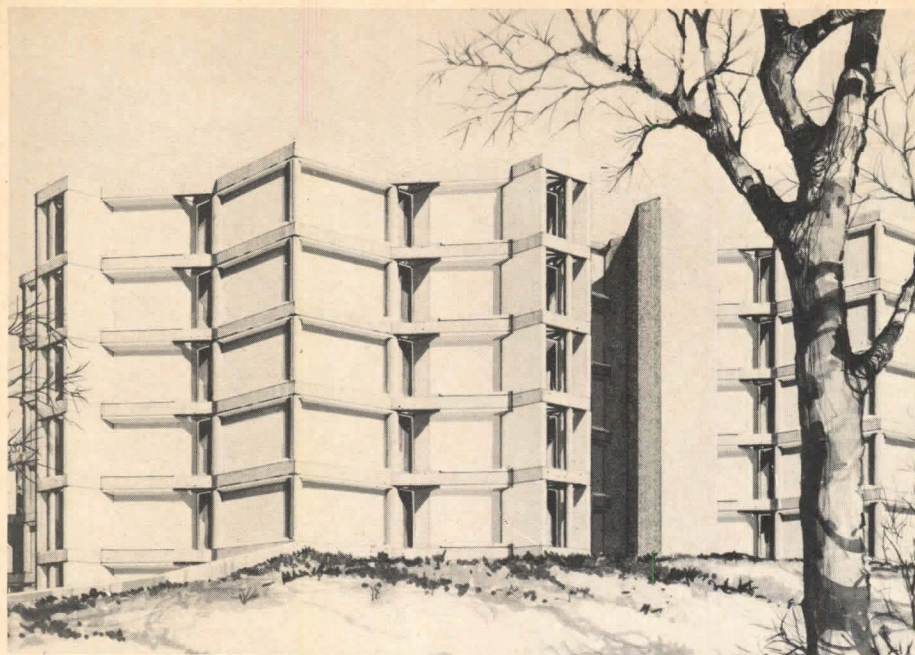


The next several buildings show an increasingly more intricate adjusting of these basic elements.

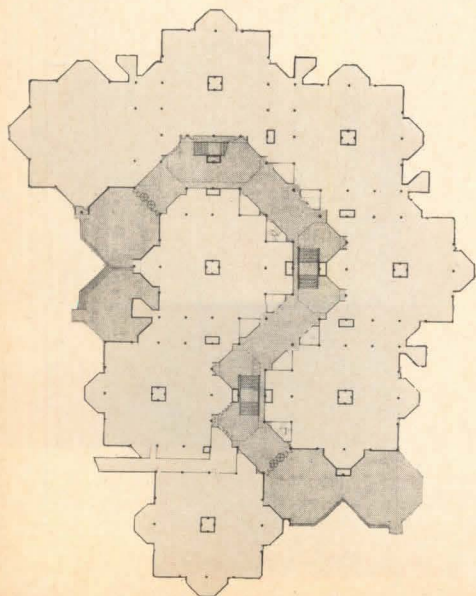
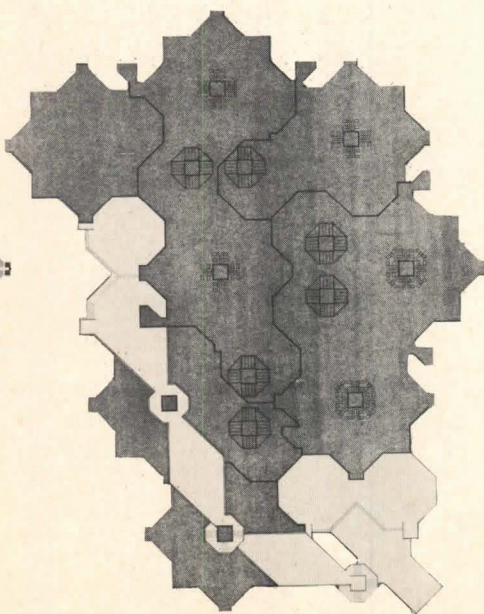
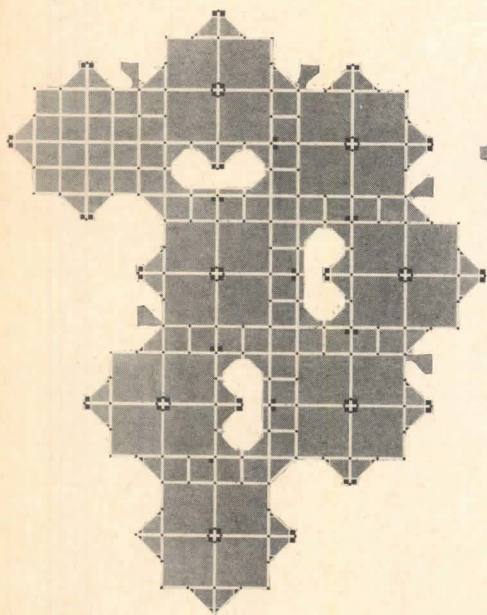
For the Science and Engineering Center at the University of Illinois' Chicago Circle Campus, a series of star-form pavilions is arranged around corridors somewhat like the A&A building on the same campus, but the sculpted effect of the exterior is increased by smaller octagonal-plan window projections set in the negative corners between the star points (facing page).

The Biological Science Building for Northwestern University apparently, is to have an equally simple exterior (this page), yet is composed of nine interconnected star-form pavilions derived from the lattice system. A slight manipulation of the walls at each star point produces a fin-protected window opening (top right).





Basic Science Building, University of Iowa.



The Basic Science Building for the University of Iowa (this page) continues this direction of adding projections to the exterior pavilions, having shallow, rectangular-plan bay windows at the alternate points of its star-form pavilions. Negative corners of the stars are further accented by windows that are recessed behind the slab line. In addition, triangular stair towers project beyond interconnections of the pavilions to give deep texture to the exterior.

From these projects, the possible variety of structural systems and cladding systems possible with Field Theory also becomes apparent.

Finally, for the Behavioral Science Center at the University of Illinois' Chicago Circle Campus (facing page), a series of interconnected star-form pavilions is augmented by smaller sub-squares at the exterior, varied by squared-off basic octa-

gons, and in the vertical dimension varied by combining these two effects to produce an intricate pattern of overhangs and exterior notches that resembles, within the discipline of Field Theory, the faceted pavilions of the Northwestern University Library.

What Are the Advantages of the System? If the Behavioral Science Building, which follows Field Theory strictly, turns out to look like the Northwestern Library, which was designed before Field Theory was fully developed, one may wonder what the system has added to SOM/Chicago's architecture.

First of all, in Netsch's hands, the process has produced varied buildings both in terms of visual appearance and psychological environment. Some of the exteriors appear simple and straightforward, even surprisingly bland, despite all the idiosyncratic manipulation of the plans. Others are mystifyingly complex on exterior, interior, or both. Yet even these, as Netsch notes, "avoid the willful, cute angularities that are sometimes designed in for sculptural variety." And, in fact, the very discipline of the lattice removes all suspicion of arbitrariness. On the other hand, the discipline is complex enough to permit the ambiguities that are the goal of many architects today.

A critic may ask whether the system produces more expensive structures than usual, since, quite clearly, it requires the construction of more perimeter wall and more partitions. In answer, Walter Netsch replies, "We also get more variety. And economic optimization is a reasonable price for the aesthetic and social good." Since the buildings designed along Field Theory lines can easily be admitted as being varied, the architects can claim that the system achieves their first reason for using it.

A second advantage of the system for the architects is that it produces more flexible environments. Since all the forms are additive, the system provides open-ended versus finite planning options. It provides a preestablished direction for changing the environment without disrespect to the basic unity of the original design. In regard to flexibility, the architects consider the Field Theory process and the lattice system as establishing what Louis Kahn calls "the Existence Will" of a building. In Chicago, they speak of the "E.W. of it." Besides permitting future changes to a completed building, the "E.W." provides a basis for future additions. "In this way," Netsch says, "we are trying to tackle the infinity problem." The completion of the A&A building may provide the first test of this aspect of Field Theory.

Critics may ask, however, if using forms as process is not still a method of designing from the outside in. Today, when the life-styles and the human functions are perhaps truly becoming the true determinants of designed interiors, many

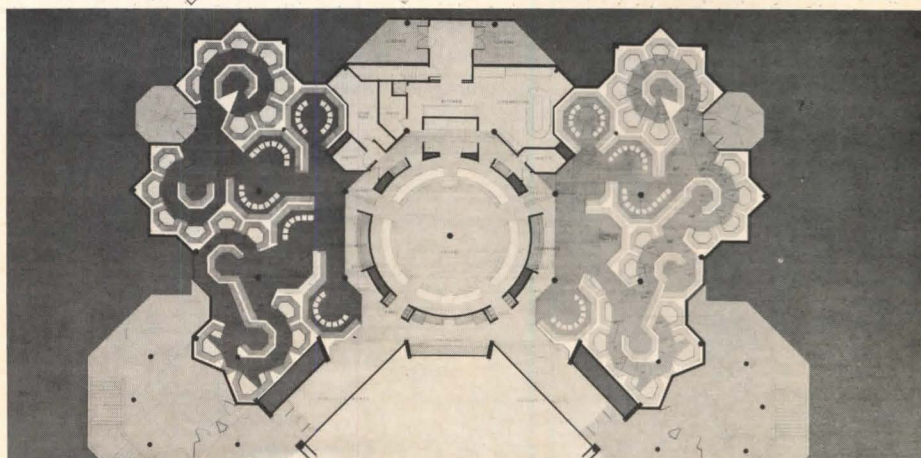
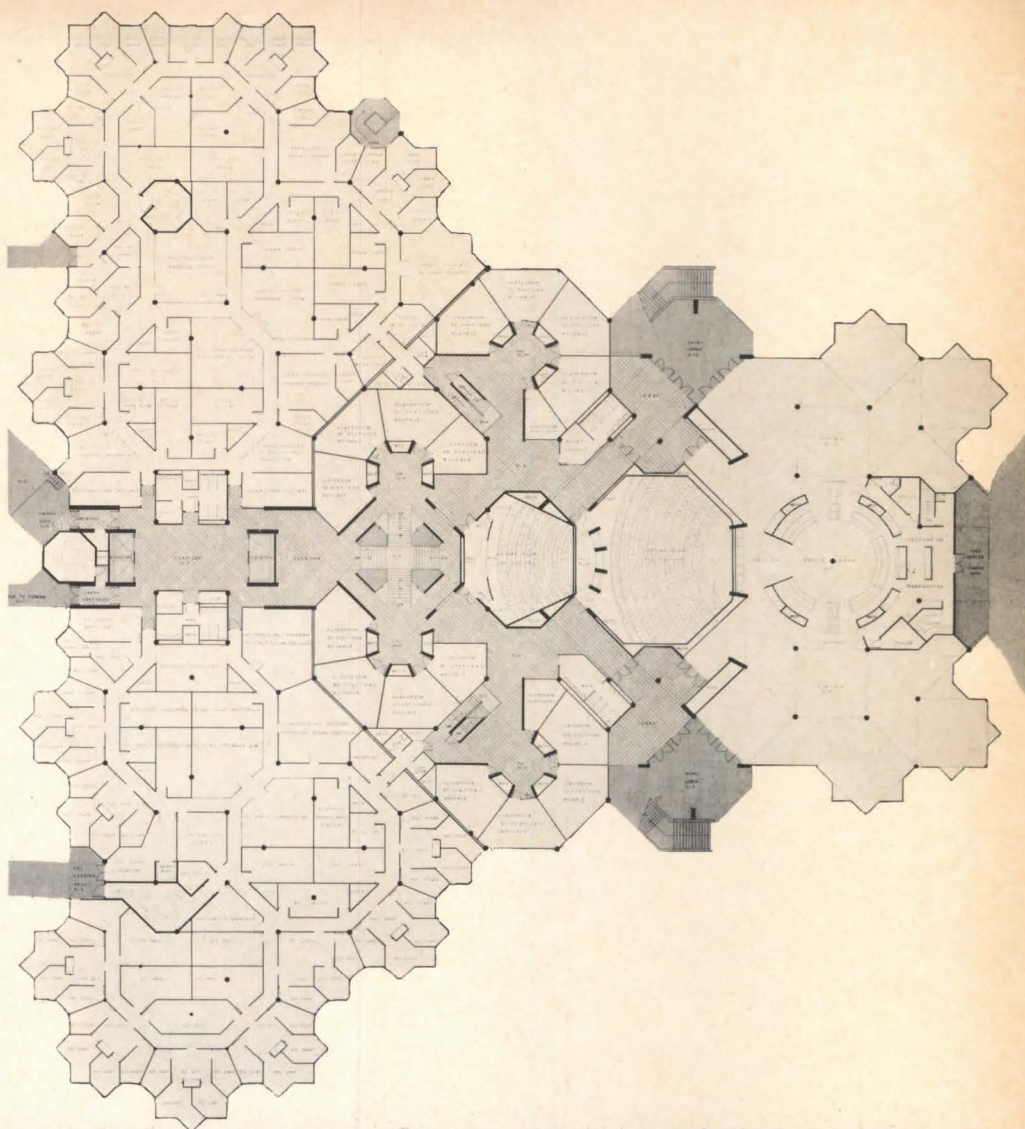
may feel that Field Theory is strictly a formal overlay, an imposed geometric game (however romantic a geometry) and that it is a vestige of Renaissance designing. "I have been a maverick for a long time," Netsch points out, "and I keep edging further from the Establishment."

The development of the Field Theory process bears witness to this spirit of "edging further from." What started out in 1962 as spaces shaped with 45° angles led to plans based on circular concentric systems, and, by 1964, to pinwheel systems. For the 15 Field Theory buildings designed since then, the architects' lattice systems have become more complicated (see p. 95, all buildings at the same scale). Grids of different sizes have been superimposed, arranged radially, and offset. The command of the process is impressive if incomprehensible.

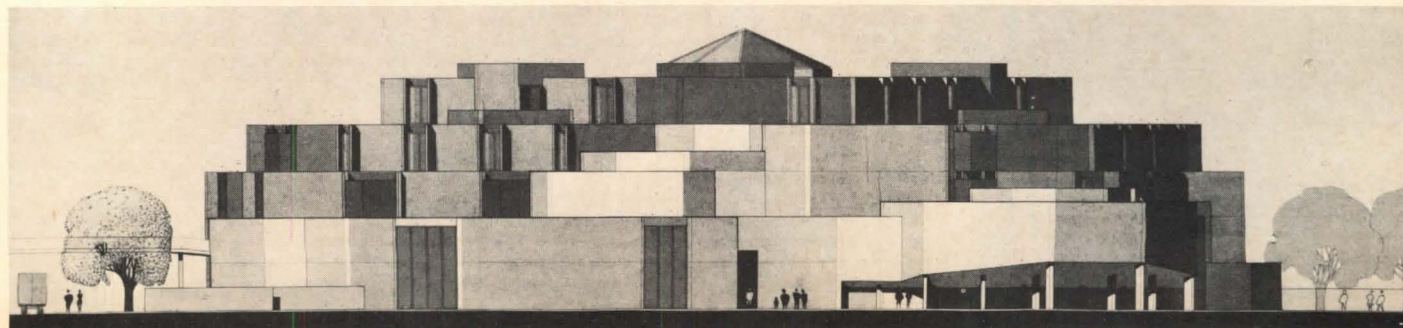
Walter Netsch emphasizes that Field Theory is a serious, conscientious system of arriving at unified, organized designs; it is not a frivolous geometric game. He points out that Field Theory is also "a self-organizing system in that it permits anyone who is responsive to it to participate." Not many architects may be able to make use of this personal process in their own practices. Netsch himself admits that these are "systemized deliberation techniques of a very personal nature. To us they provide a Matrix for Thought."

Since it is so evidently personal a methodology, Field Theory probably cannot be judged in itself with fairness. The amount of effort that a design system requires in relation to finished buildings is not a criterion of the artworks of architecture, since the efficiency of an architect's design process is biographical and basically irrelevant to his product. In the final analysis, however, the real benefit of Field Theory will be as a more speedy organizing tool with which to design a great number of buildings. And Walter Netsch points out that his colleagues have recently been responsible for building 800,000 sq ft of space per year.

In a day when, as one of this year's P/A Design Awards jurors noted, we must think on a mammoth scale—a scale on which entire buildings must be considered as details were in the past—the Field Theory design process may point a way. — CRS



Behavioral Science Center, University of Ill.

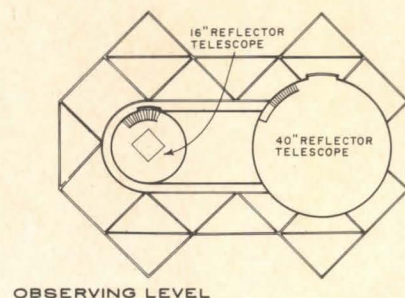


CIRCLES ON SQUARES

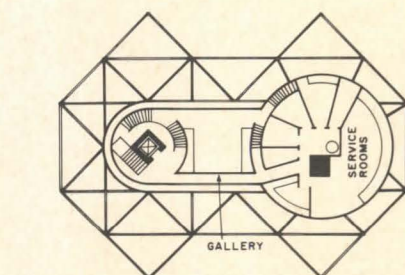
Although it is more of a structure than a "building," the Lindheimer Astronomical Research Center is planned on the rotated square concept that SOM developed for the other projects shown in this issue. It is a precursor of their Field Theory buildings. The research center houses two telescopes for Northwestern University at Evanston, Illinois. The site is filled land in Lake Michigan (see p. 130, AUGUST 1962 P/A), a situation that permits the observatory to get as far away as

possible from the smoky haze of Chicago.

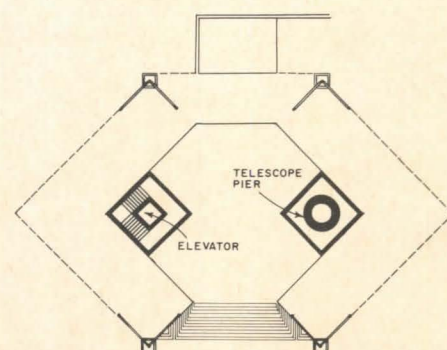
Each telescope is contained in a circular, domed room located atop a square shaft. Since a prime requirement for the telescopes is that they remain free of movement due to temperature changes, vibrations, or wind, the designers set each one on a pier and constructed the enclosure independently around the piers. The larger telescope is carried on a hollow pier, the smaller sits on a concrete core wall surrounding a hydraulic ele-



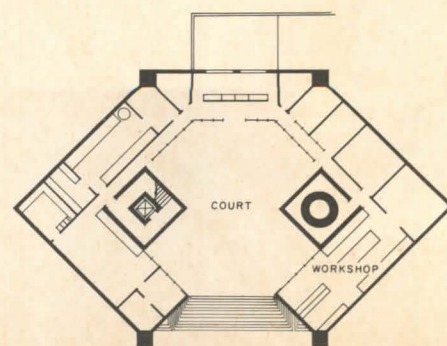
OBSERVING LEVEL



UPPER LEVEL

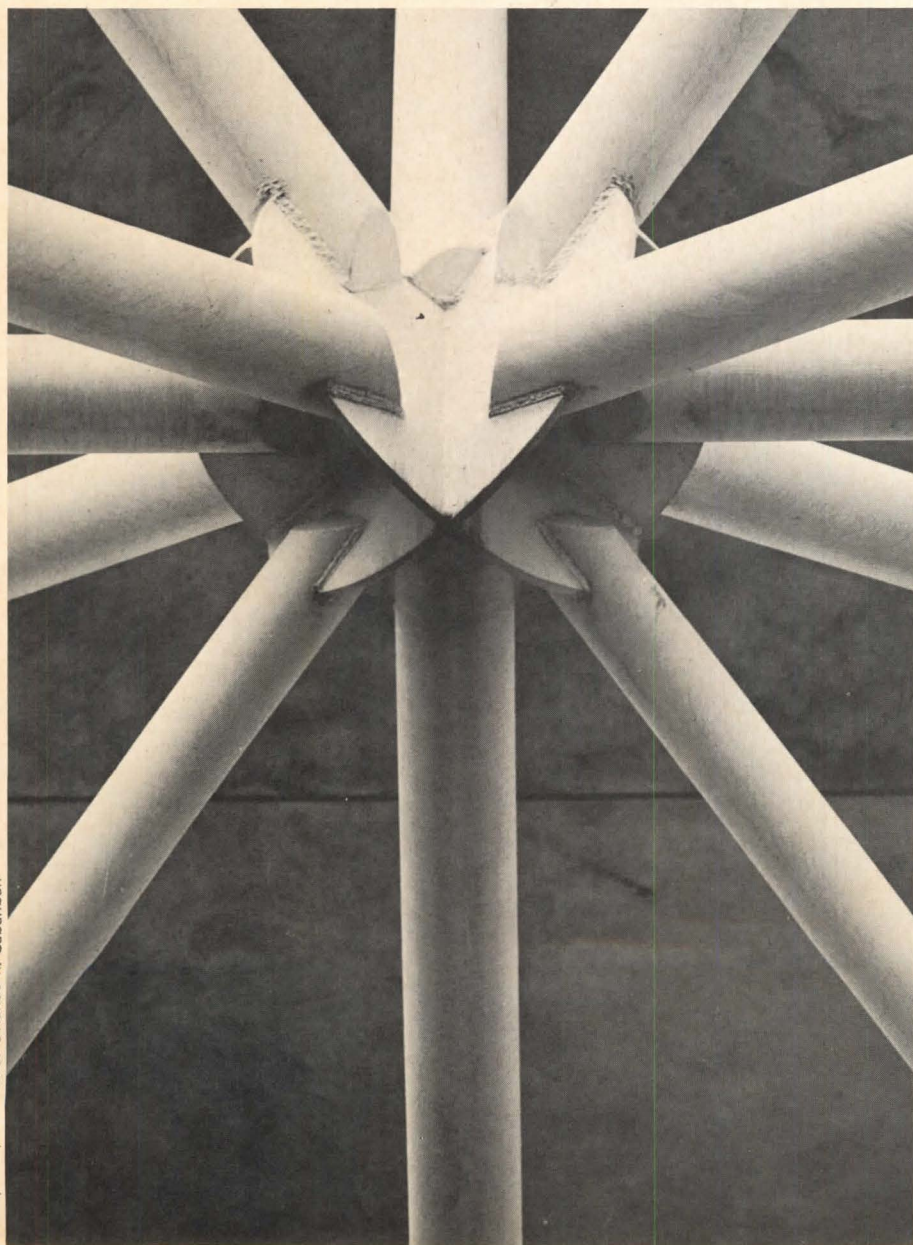


INTERMEDIATE LEVEL



LOWER LEVEL

0 20'



Photos, except as noted: Orlando R. Cabanban

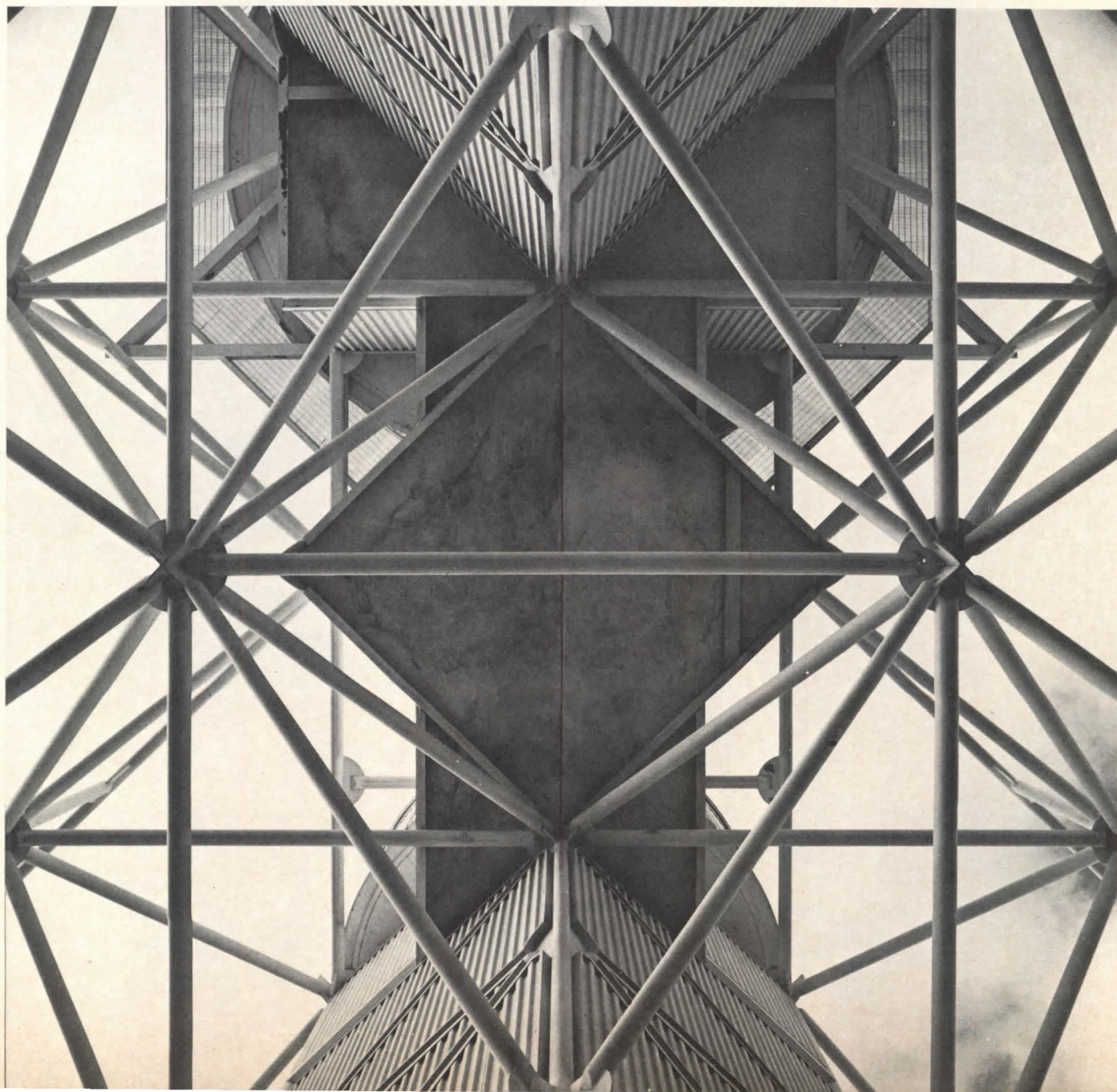
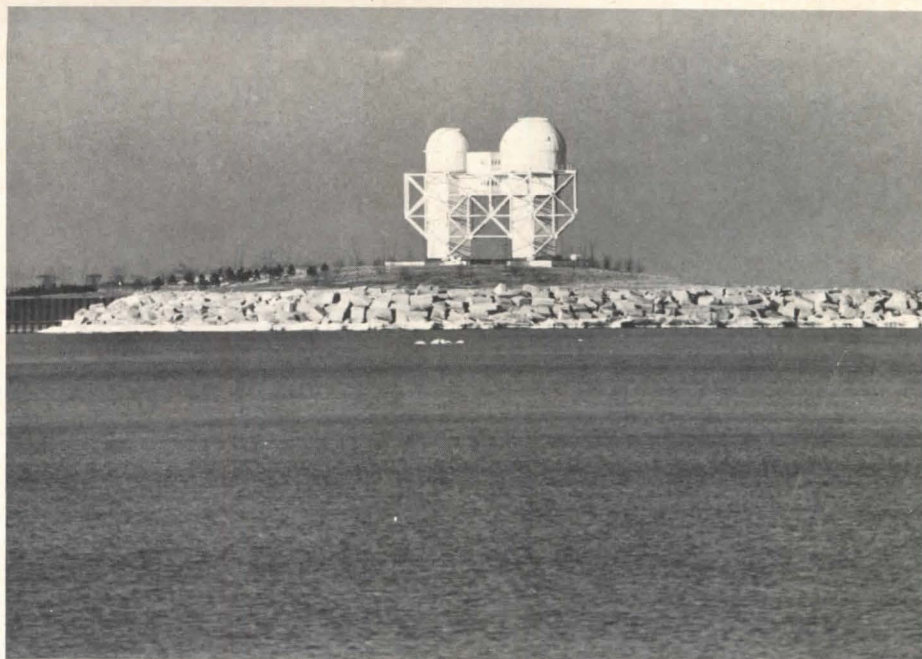




vator. The university requires two telescopes, since one, a 40-in.-diameter instrument, is used for research, and the other, a 16-in.-diameter telescope, is used by students.

The enclosure is supported by a tetrahedron framework of welded steel pipes. On plan, this framework repeats the diagonal squares of the rooms at ground level and the two shafts. All loading from the framework transfers to its four bases that stand atop concrete piers set well outside the telescope foundations. This configuration gives a wide stance to the structure, and greatly assists it to resist strong wind forces driving across the lake. Shafts and telescope spaces are enclosed with corrugated steel panels.

The astronomical research center was planned before the Field Theory was fully developed, but the aesthetic image of the steel pipe tetrahedron framework indicates the acceptance of the lattice pattern that already existed in the architect's minds. — PMG

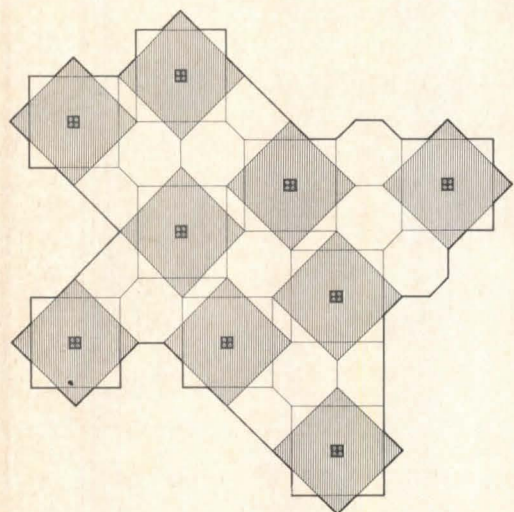


LIBRARY FOR WELLS COLLEGE

Like a lazy cloud, the roof of the Wells College library covers a field of nine stars — not the heavenly variety (though the analogy is not inappropriate), nor the performer species (though many a Wells College girl gets top billing). Instead, the stars of Skidmore, Owings & Merrill's library for the Aurora, N.Y., women's school are nine interlocking units that compose the floor plan. The grid pattern diagram (left) shows each star-shaped unit centered on a "rotated"

(or diagonally placed) square column.

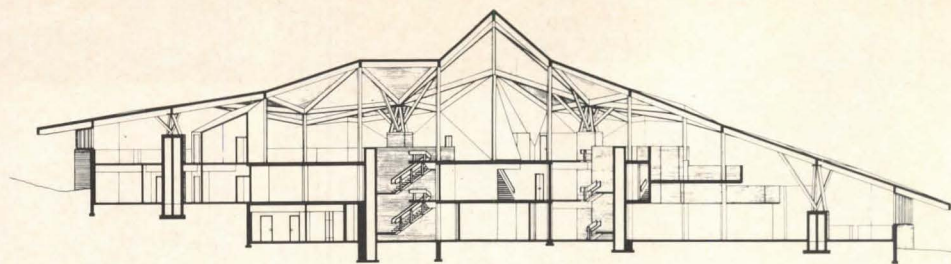
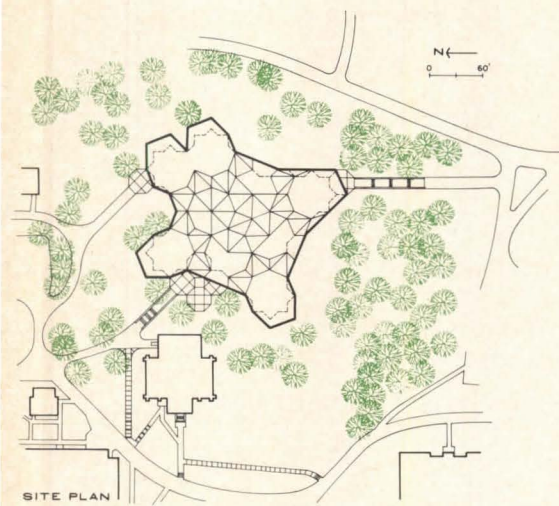
This recently opened Louis Jefferson Long Library is the first completed building constructed along the lines of SOM/Chicago partner Walter Netsch's design process called Field Theory. The star-shaped units — or "fields" — that are developed by this systematic process (from a "lattice pattern" of rotated squares and octagons) are intermeshed so thoroughly in the library, and the perimeter line of the building is manipulated with such



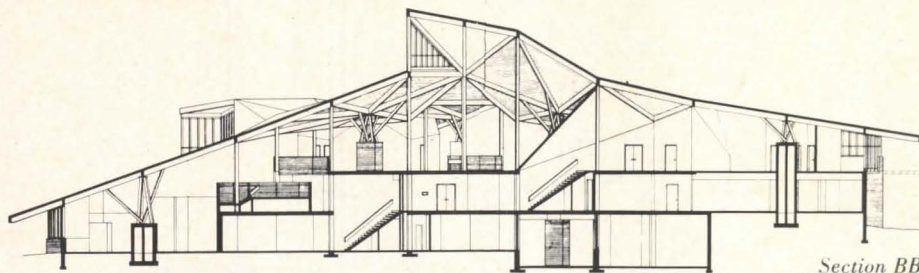
Photos: Louis Reens







Section AA



Section BB



seeming freedom, that the existence of Field Theory as the basis of the design is not immediately apparent.

In addition to the plans, the sections reveal that Field Theory has also been employed in the vertical dimension, producing a billowing, angular roof. In this dimension, the architects say the Field Theory and the patterns established by the lattice system were influenced by the site.

None of this form making looks arbitrary, however, either outside or inside. Even the faceted planes of the building seem to give only slight, raised edges to the gentle setting, formalizing the rolling hillside terrain above Lake Cayuga, which is to the west.

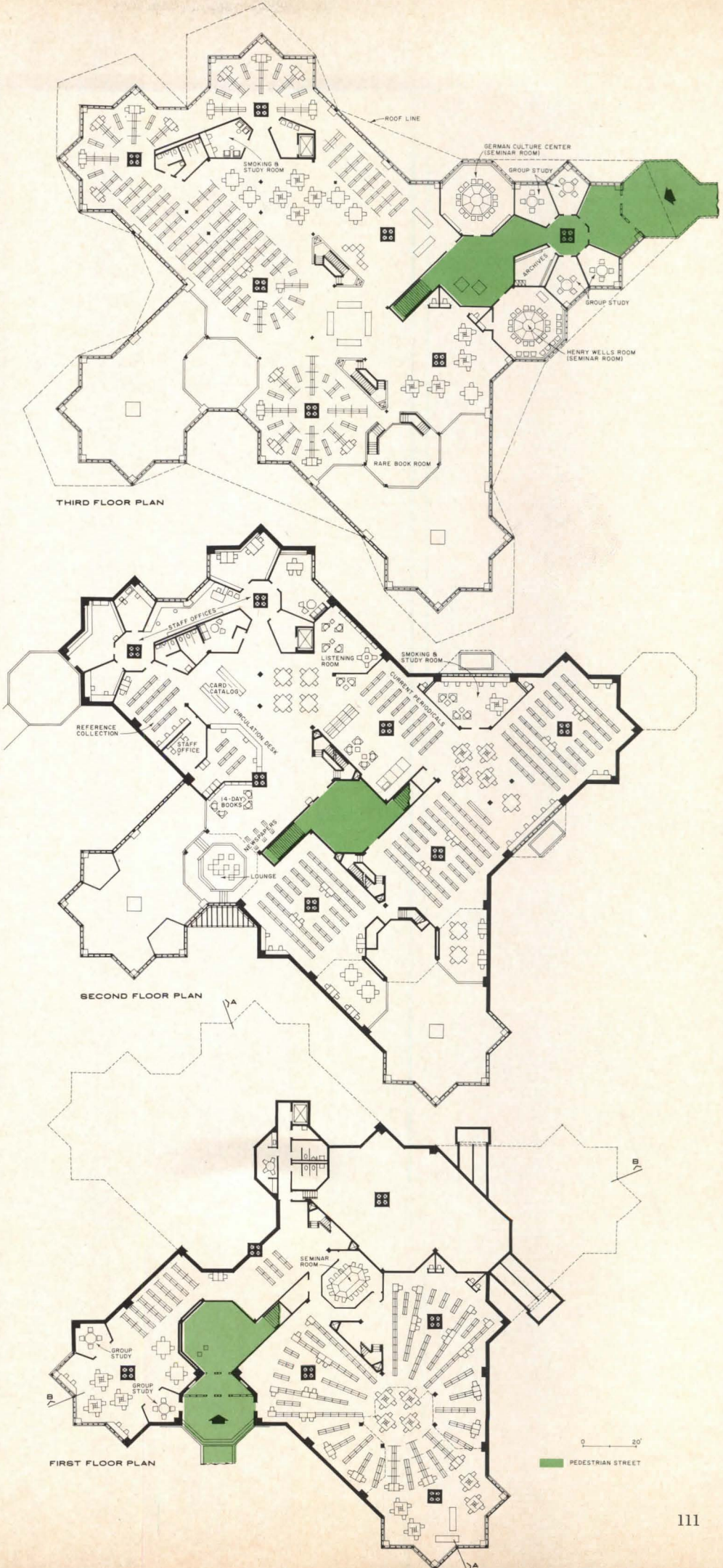
"I am on my tenth library," Walter Netsch observes, "and the one thing I think I have learned is that there is no one way to do a library. It remains an environmental problem." Environment is what Wells College got—and environment of a highly appealing order.

The program required stack space for 250,000 volumes (all on open shelves except for those in the rare books room) seating capacity for 328 readers at one time, a wide variety of study environments (including places to study and smoke, seminar rooms, and a music listening area) as well as a permanent art gallery, and a room of the future that will accommodate electronic carrels, which will one day be used for information retrieval from other library centers.

Although the building was carefully prescribed in a minutely detailed program document by library consultant Ralph E. Ellsworth, Director of Libraries at the University of Colorado, it reveals immediately that the architects were able to provide those facilities (see labeled plans) within a structure that rises, aesthetically and environmentally, above the mere accommodation of basic requirements. Further, it demonstrates the freedom that the architects have already achieved in working within a seemingly rigid geometric design system.

Beneath what Walter Netsch describes as "a wild tumbling roof, a big tent," the 55,000-sq-ft, \$2-million library environment has been planned on three levels with a "pedestrian street" running through it (see circulation overlay on plans). This circulation pattern, which also serves as an exhibition space, follows the Field Theory principle of providing major traffic corridors outside the basic environmental "fields" or modules. "Even when the entrances to the library are closed," a Wells College spokesman

Louis Jefferson Long Library, Wells College, Aurora, N.Y. Dedicated October 18, 1968. Dr. L.J. Long, president; D. Fultz, treasurer. Skidmore, Owings & Merrill, Architects and Engineers, Chicago, Illinois. Walter A. Netsch, Jr., Partner in charge of Design; William S. Wainscott, Project Manager; James De Stefano, Project Designer; Robert D. Kleinschmidt, Project Designer, Interiors; Jack Falkenthal, Job Captain. General Contractor: Stewart & Bennett Inc., Ithaca, N.Y.; Henry McGuire, Partner in Charge. Major Subcontractors: Mechanical, A.J. Eckert Co., Inc., Albany, N.Y. Electrical: P. Fisher Electric, Auburn, N.Y. Laminated Wood: Koppers Co., Inc., Peshtigo, Wis.





points out, "the group study room, the German Culture Room, the art gallery, and the Henry Wells Room are available for use."

Rambling and ambiguous as this pedestrian street may be, it is neither as puzzling nor alienating as is architect Netsch's elaboration of the corridor in his Art & Architecture building at the Chicago Circle Campus of the University of Illinois. By contrast, the Wells College Library's pedestrian street provided a lively and appealing environmental experience when the building opened with an exhibition of splashily colored banners by pop and op artists.

In addition, orientation on the interior is greatly assisted by great windows opening onto the wooded hillside and by the long vistas provided in the predominantly open single space on the uppermost level, where there is a constant visual relation to the tent-like roof. "The ultimate goal," according to the architects, "was to establish a participation of the roof structure with every level of the building as well as a relationship with the natural topology of the site."

Orientation is also provided by the layout of stacks, which is varied to create distinct views on each floor. The ground level has a single radial system so that the space can be read from the center point: the second floor is laid out on a grid pattern; and the uppermost level has a composite plan using a grid system in the middle and a radial system on the ends.

Similarly, the structure of the building is a composite: the roof is supported by wood cluster columns resting on masonry piers (which double as air-distribution ducts) at the centers of the nine star-shaped units, by hemlock wood columns, and by masonry exterior walls, which use the brick common to the campus. The first and second floor slabs are steel-

framed, the columns and beams being laid out in radial patterns centered on the masonry piers. The octagonal units are distinguished by a deeper slab.

The multi-faceted roof, composed of 84 separate irregular octagonal planes, is constructed of 3 in. and 4 in. unfinished Western red cedar decking with white rolled exterior surfacing (the seaming pattern of which the architects designed, like formwork). "There are no rigid connections and no horizontal ties," the architects explain. "Wind resistance is provided by the cluster columns, which have the effect of knee braces. All connections develop shear only and utilize standard fastening devices. All surfaces are plane, and all framing members are straight. The 'broken surface' of the decking provides built-in relief from the chronic problem of wood construction — swelling."

The structural system and the Field Theory planning are reiterated by the shapes of furnishings, such as octagonal tables and square tables rotated, as well as by the radial layout of fluorescent lighting and stacks, which have been mentioned previously.

So as not to overemphasize the multi-faceted scheme, however, muted colors have been selected for the furnishings: carpeting, which is used throughout the library (except for mechanical rooms and rest rooms), is a natural gray-beige tone that is matched in the paint finish of bookstacks and conference chairs. All exposed metal surfaces of building hardware and furniture, nearly all of which was specially designed for the building, are bronze. Deep colors of mohair upholstery, elmwood work surfaces supported by dark lacquer, and bronze plexiglass carrels continue the muted scheme.

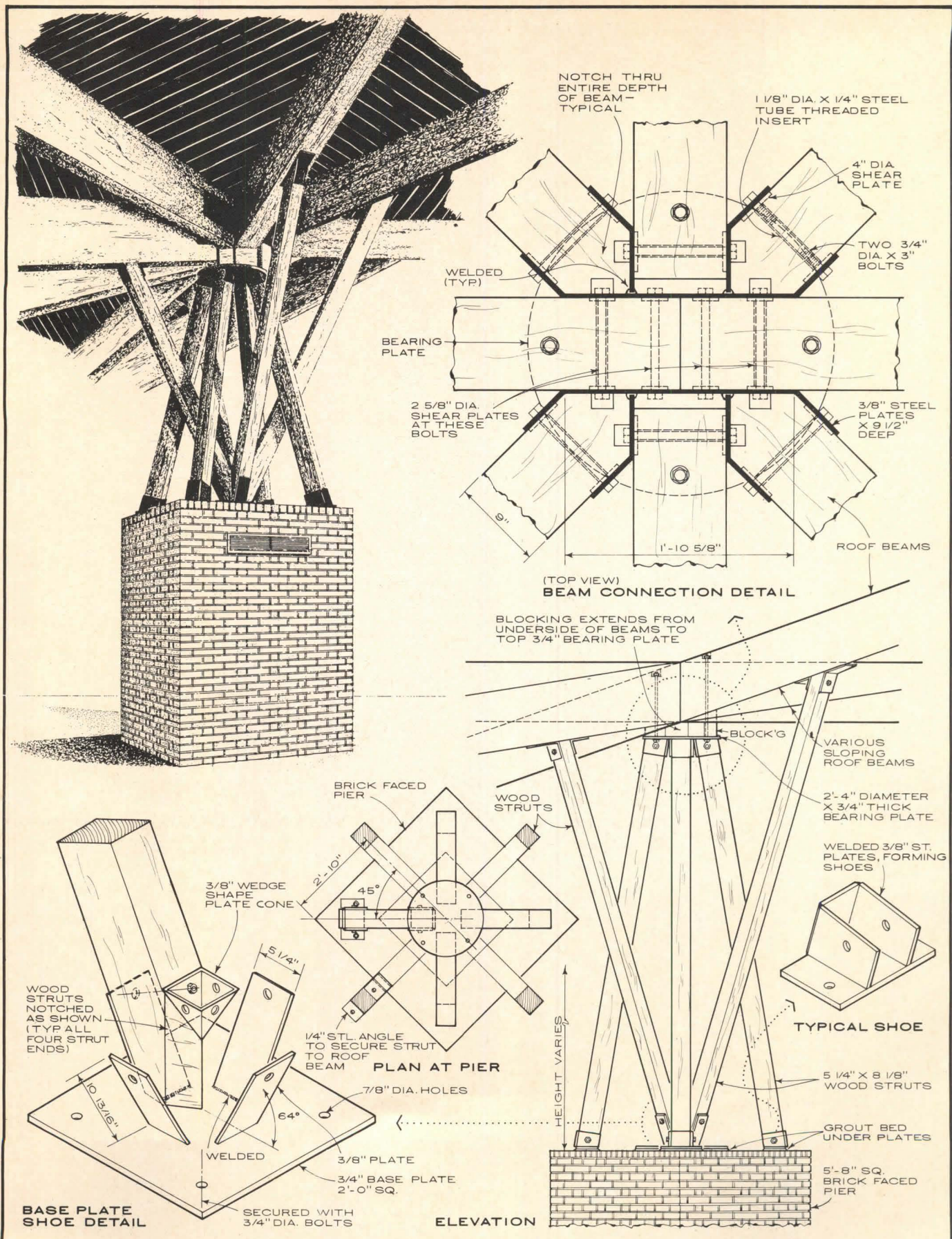
For splash, color is added onto seemingly eccentric architectural elements, such as diagonal sloping plasterboard

walls, which derive from the need to enclose stairwells and to make partitions meet beams in the most direct straight line, yet which also reiterate the Field Theory lattice. On these walls, reds, purples, and oranges add lively as well as meaningful punctuation.

With this variety of form and vista, texture and color, public walk-through and private nook and cranny, the Wells College library is a vital environment of, literally, many facets. Simple as it looks on the exterior, it is entirely consistent with the complex geometry of its planning. Complicated as that design process may be, it has produced a building that is neither psychologically complicated nor formally pretentious. It has produced a building that is also sufficiently idiosyncratic, ambiguous, and interrelated to speak to the superimposed life-styles of today.

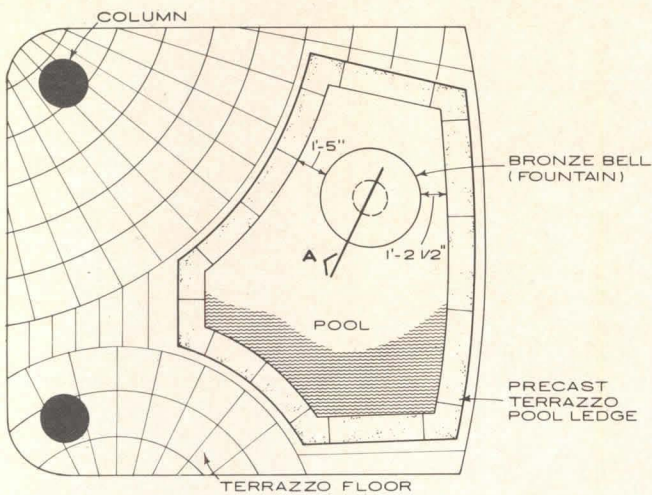
Student and faculty reaction has been one of enthusiastic delight. The girls find the building fun and exhilarating; they like the lively colors, the feeling of the tent roof, and the controlled rambling of the geometry. In fact, the library has provoked a purseful of poeise: "like a glacier sliding down the hill," said one; "like a bouquet of umbrellas" said another. We like to make an analogy with the stars, which the Field Theory suggests; for, its star gazing into the future is an essential element of good architecture. With a view toward expansion, the building was programmed to serve an increased enrollment from 550 to 800 students in 1970-75 and a future capability of serving two campuses with twice that population; in addition, the wiring for future electronic information retrieval systems has been incorporated now. This kind of view to the future may make it possible for the star plan of the Wells College Library to grow, ultimately, into a galaxy. — CRS



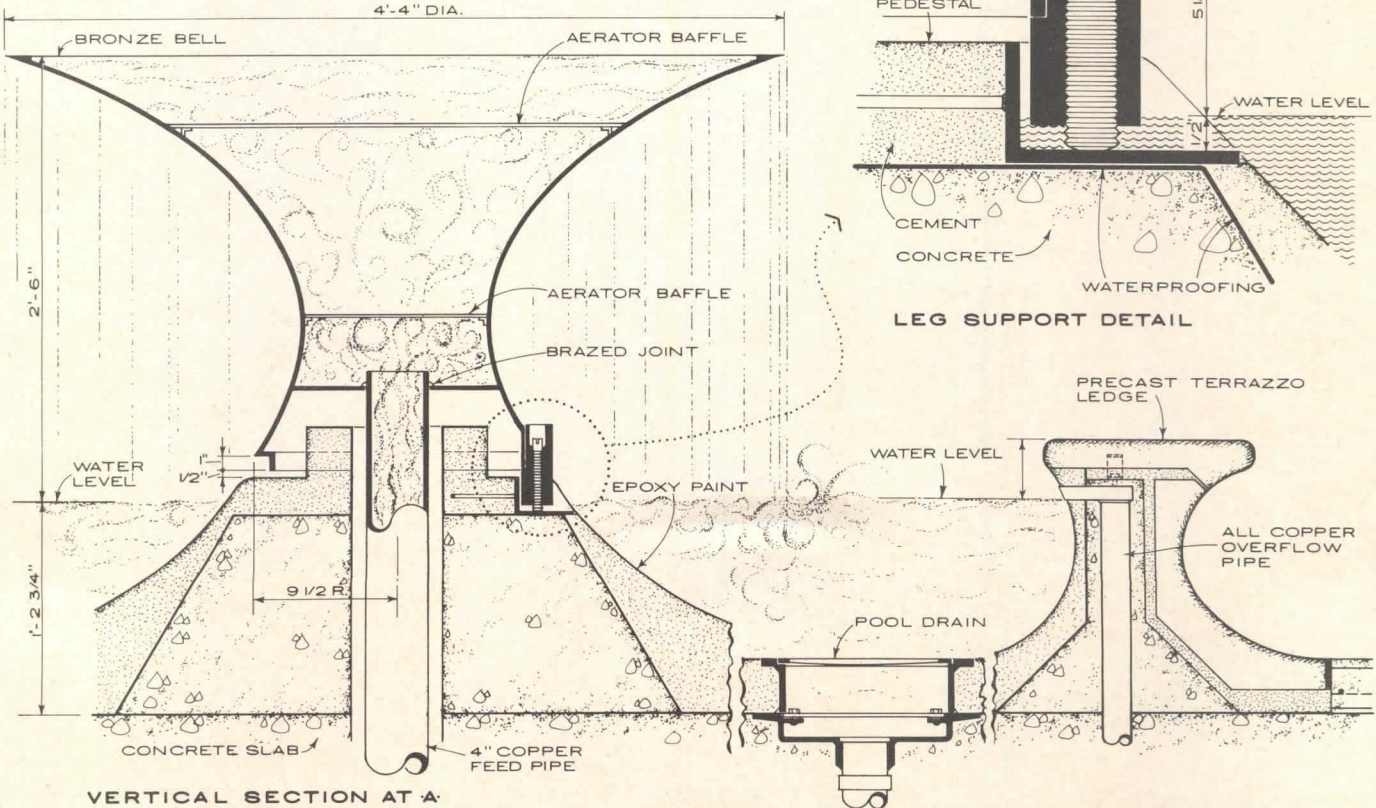
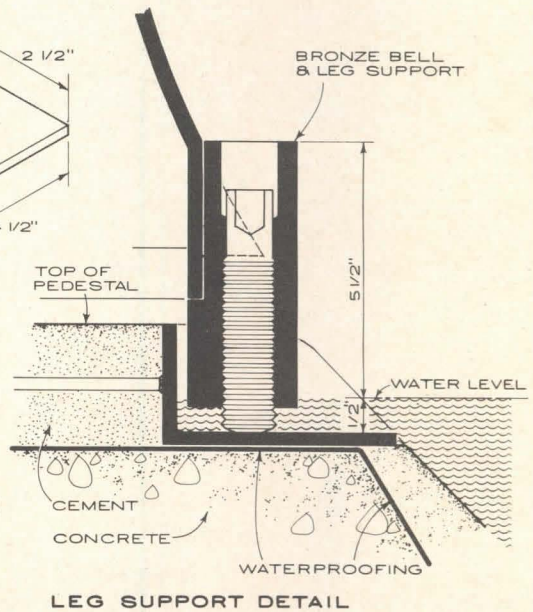
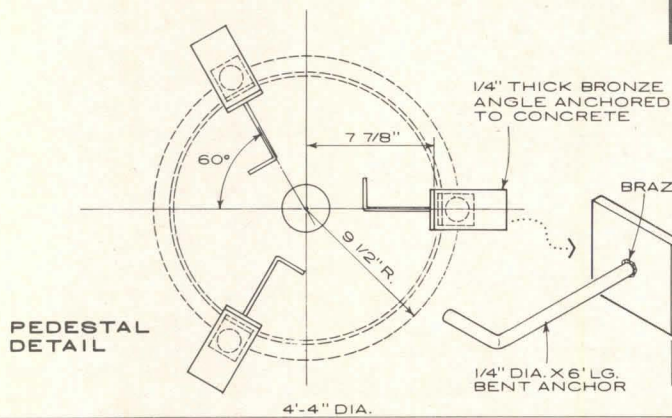
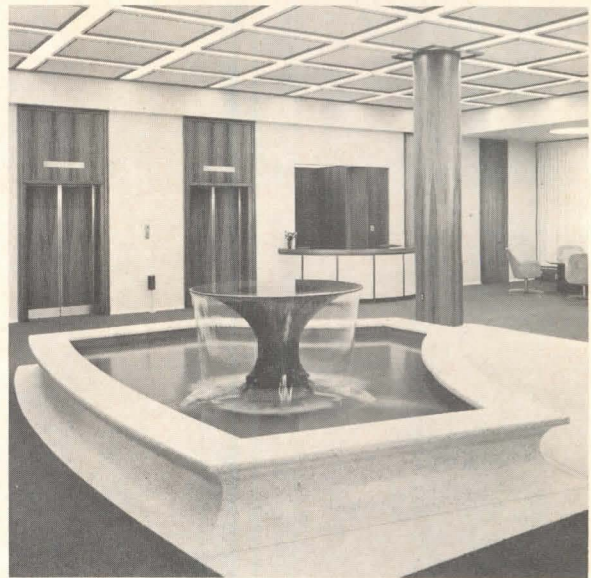


WELLS LIBRARY: Aurora, New York
SKIDMORE, OWINGS & MERRILL: Architects

SELECTED DETAIL
COLUMN DETAIL



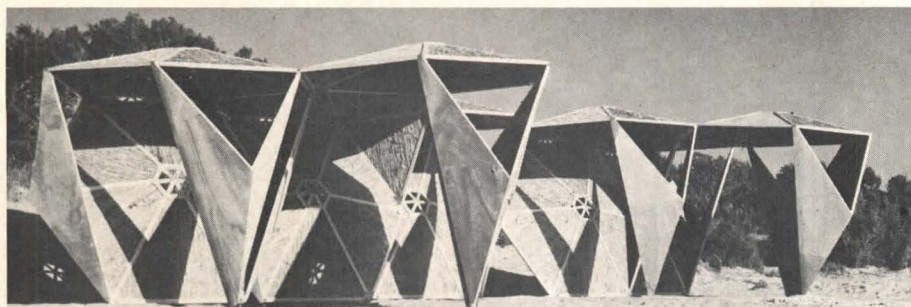
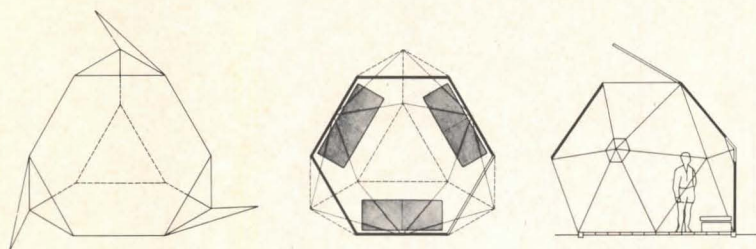
PLAN



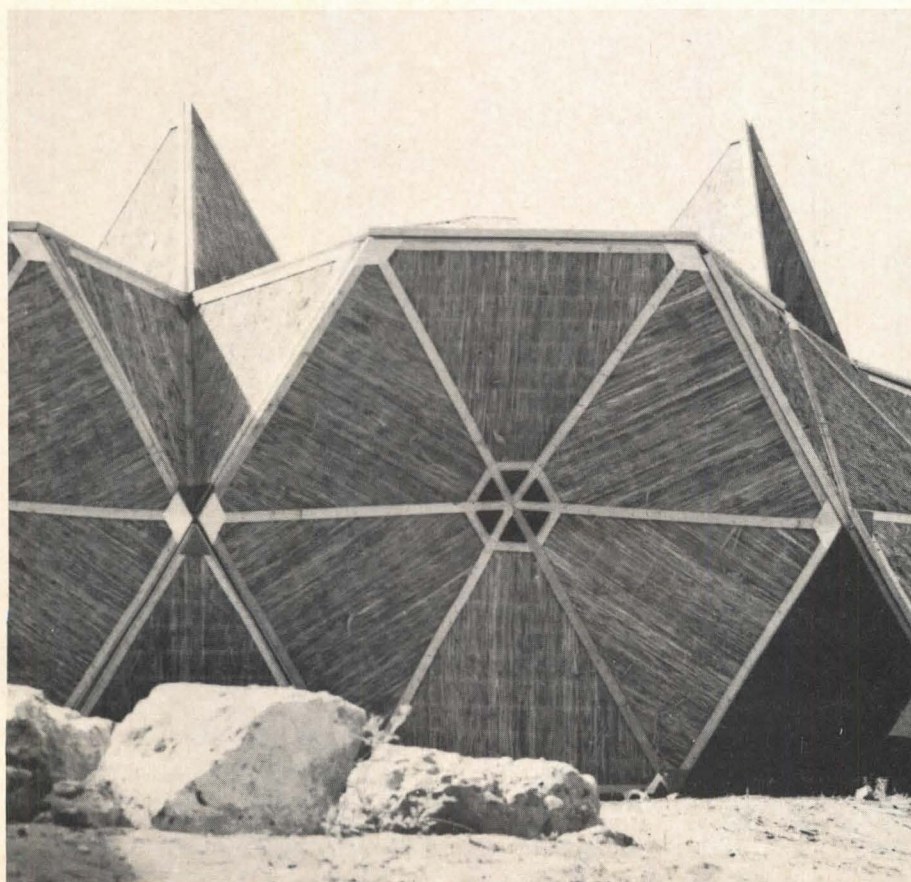
WHAS RADIO AND TELEVISION STUDIOS: Louisville, Kentucky
LOUIS & HENRY: Architects and Associates

SELECTED DETAIL
FOUNTAIN DETAIL

GEOMETRIC PREFABBIN



Club Mediterrane at Ahziv.



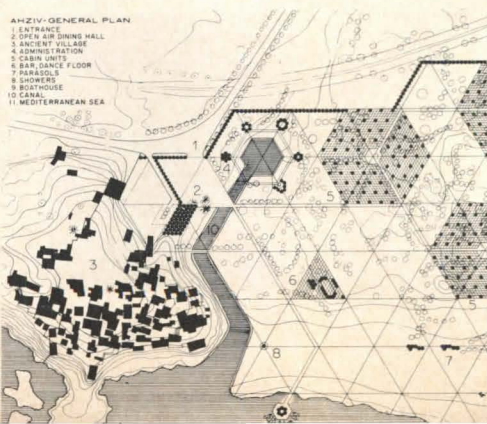
Geometry pervades the designs of the Israeli firm illustrated in the following pages, but, by its own admission, the firm does not manipulate lines in an effort to reach solutions to architectural problems. Since most of their work has a strong three-dimensional quality, the designers not surprisingly make numerous models — as many as seven for a simple project — and rely upon intuition to guide their way. One of the most frequently used books in the office is *Geometrical Models*, which is primarily aimed at model makers.

Some of the projects were designed by Neumann, Hecker & Sharon, and others by Neumann & Hecker. Three years ago, Alfred Neumann left Israel for Canada, where he directed the graduate courses of architecture at Laval University in Quebec City until he died last November. Zvi Hecker teaches at the same school; Eldar Sharon left the firm in 1965.

Hecker says that the firm is outside the mainstream of Israeli architecture, and has run into difficulties with its geometric design philosophy. With the simpler designs, such as the vacation camps, economy carry the projects through, but the large buildings require clients with understanding of the architects' feelings about building. Hecker says, "There is a general idea in all these projects that can somehow be explained geometrically: The buildings do not express their functions, but the purpose of the buildings cannot be missed. An office building does not look like a conventional office, but it certainly does not look like an apartment building. Similarly, the engineering school building looks very precise without specifically expressing its function. There are many ways to make structures, but not many ways to express architecture; and I think that the most important thing is to be able to express yourself.

"There are many manifestations of our work indirectly linked with architecture, but having in common a concern for the formation of space patterns on different scales. The recent developments in X-ray diffraction techniques and the use of the electron microscope in crystallography, three-dimensional chemistry and biology, display a new and fascinating world of structures in many polyhedral atomic patterns which were only vaguely suspected some years ago.

"But looking around us, one becomes conscious that our technological world



is no longer restricted to rectangular patterns. The contrary is also true: cars, airplanes, structures, the whole new range of mechanical equipment and nearly everything produced by machines, observe the same characteristics with their departure from the cube structure into more elaborate and orderly polyhedral shapes. Houses, not just their components, will be produced by machines, and their formation will certainly advance in the same direction. The introduction of the computer will extend even further the possibilities of adaptation of new forms due to the analyzing and rationalizing ability of the computer. This will be helped by the better understanding between the two instruments, the thinking and the producing machines.

"Architecture as we know it today—old-fashioned and senseless—will soon become obscure and distressing, for it is so completely inconsistent and contradictory to what it pretends to put in order. Despite our initial difficulties in visualiz-

ing the possible new patterns, we were convinced that many of them which are distinctive in strength and rigidity might be rationally used in architecture even more effectively than the much exploited rectangular patterns. Working intuitively and independently from any scientific observations, we were undisturbed by the immediate lack of confirmations, but we expected that they would come later."

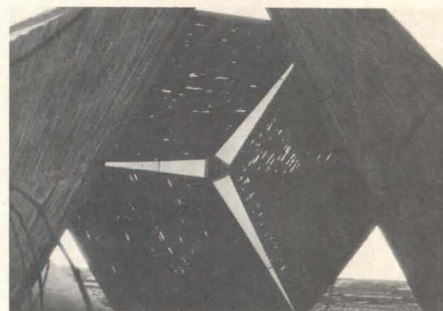
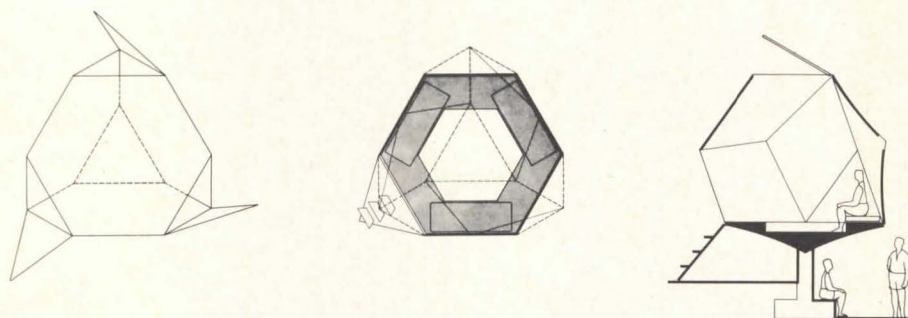
Vacation Camps on the Mediterranean Coast. With hexagonal panels built into tetrahedronal forms, the three Israeli architects built low-cost living quarters for recreational camps that differ strongly from the everyday conditions of rectangular room geometry. In addition to breaking the institutional mold of camps, architects Neumann, Hecker & Sharon, Tel Aviv, also wanted to produce an inexpensive construction system that could be quickly erected, and, if necessary, dismantled for storage during the winter. The cabins had to compete in

price with regular, canvas tents.

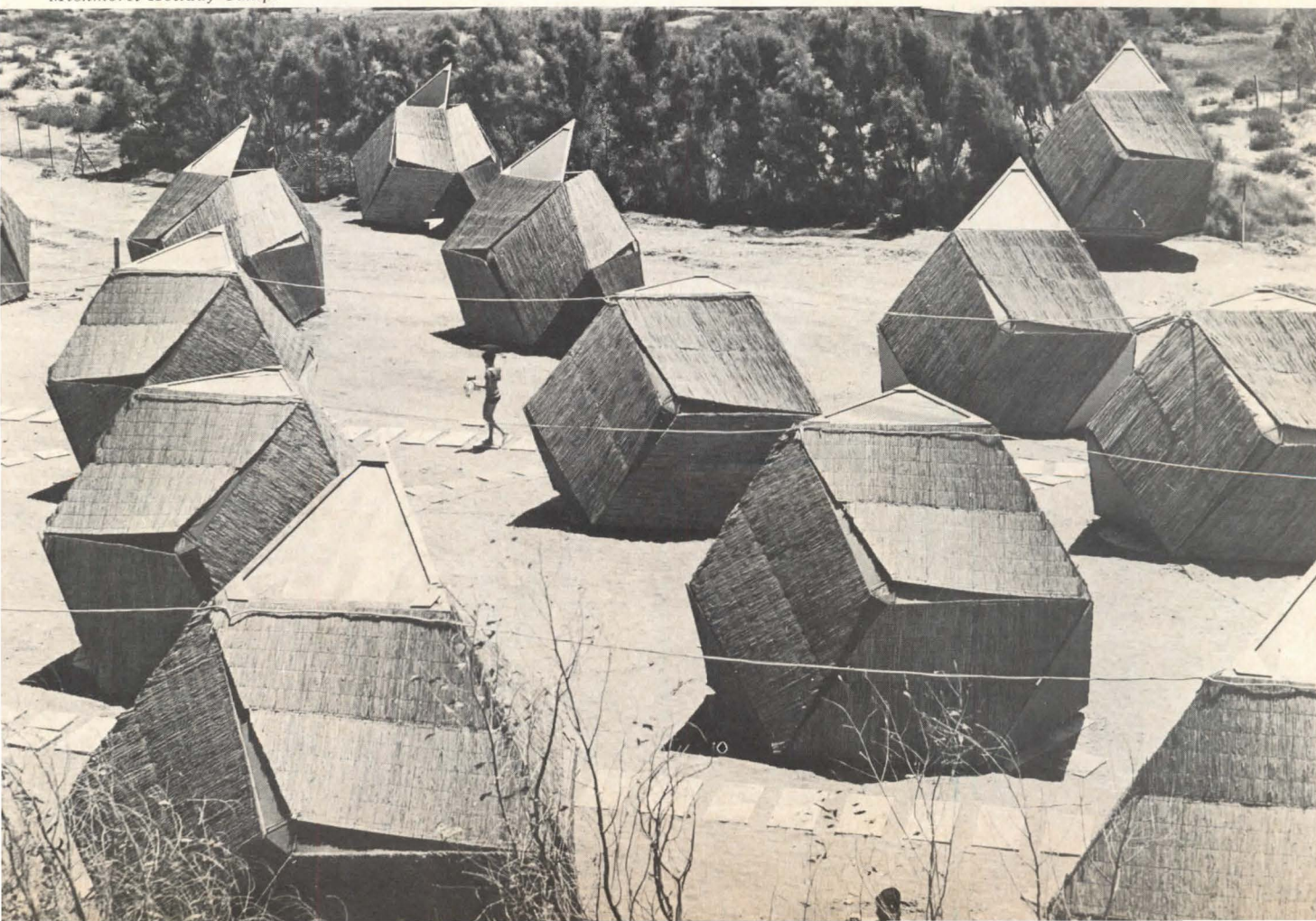
At the first camp, Club Mediterrane, built at Ahziv in 1961, 350 cabins accommodate 700 people on a beach site close to the ruins of a Phoenician village. The whole camp is laid out on a hexagonal grid, which reflects the hexagonal panels of the individual cabins. These 6-ft-radius wall panels were fabricated on site with pressed reeds wired into sheets and framed with lumber.

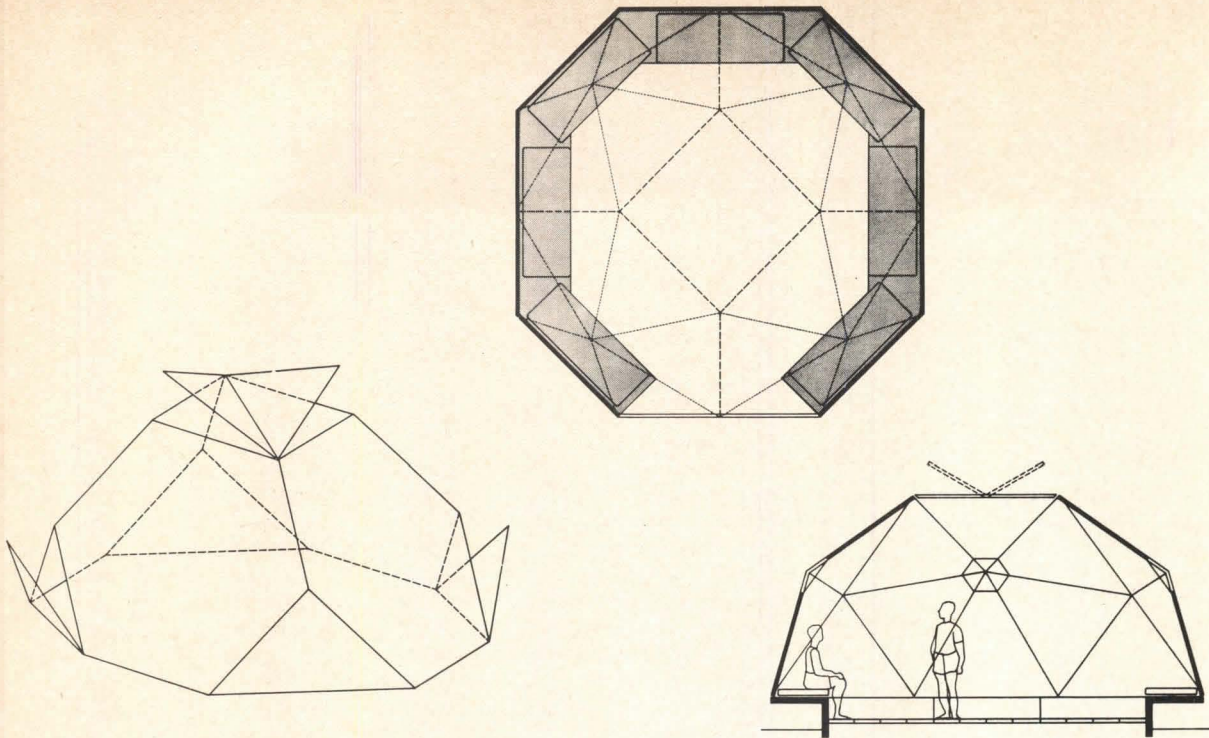
The basic cabin unit is a truncated tetrahedron built with three slightly convex hexagonal panels. Triangular panels in the roof can be opened for ventilation. Each cabin accommodates two or three beds, but no plumbing, since dining and bathroom facilities are communal.

Two years later, the firm refined the cabin design by assembling the wall panels so that the spaces between the edges of the panels form star-shaped openings for light and ventilation. Cabins at the Michmoret camp, described by the designers as half truncated octahe-



Michmoret Holiday Camp.





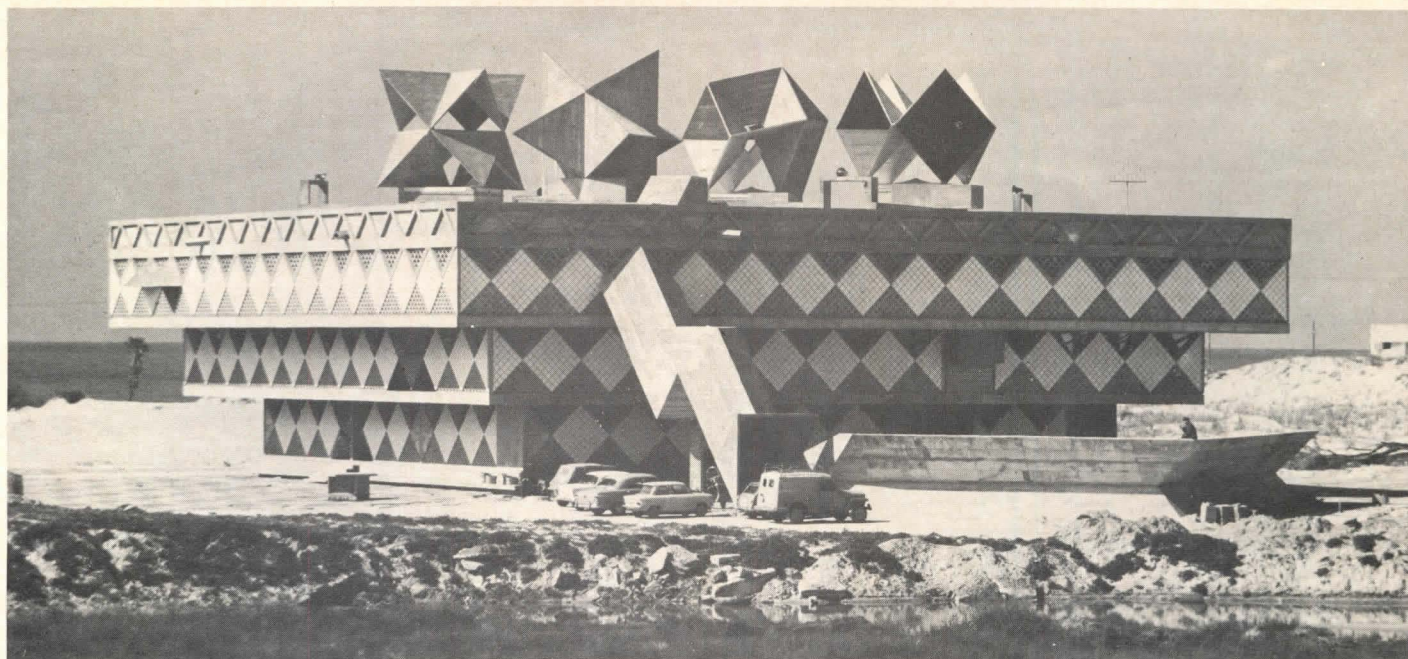
Kiriat Yam Youth Camp.



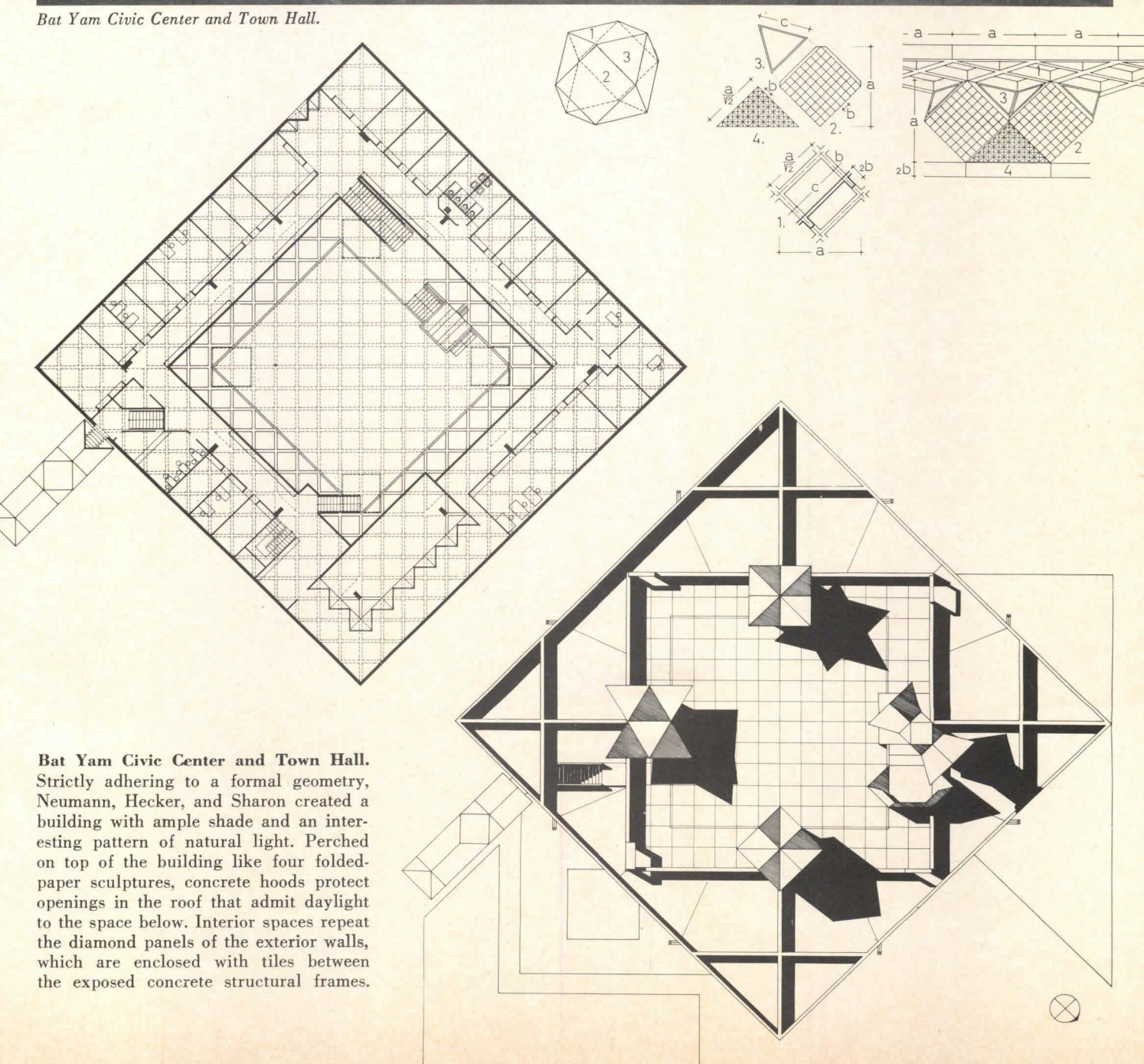
drons, can be built on platforms 3 ft above ground to provide a shaded area beneath them.

The same year, Kiriat Yam Youth Camp was built with octahedron cabins to accommodate between 7 and 10 children. With only one extra hexagonal panel, the 110-sq-ft floor area of the previous camps cabins was increased to 300 sq ft.

Common to all three projects is a construction system that the architects describe as economical: "By exploiting the unique structural properties of the polyhedral solids, it was possible to produce low-surface-resistance hexagonal elements whose assemblage forms an extremely strong tetrahedral body."



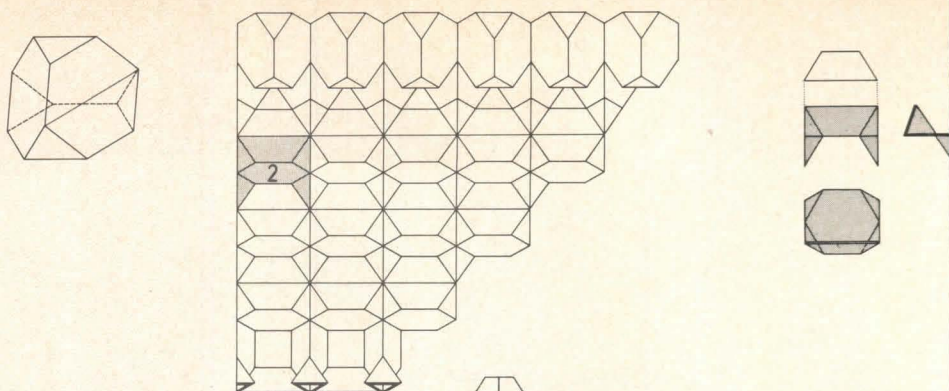
Bat Yam Civic Center and Town Hall.



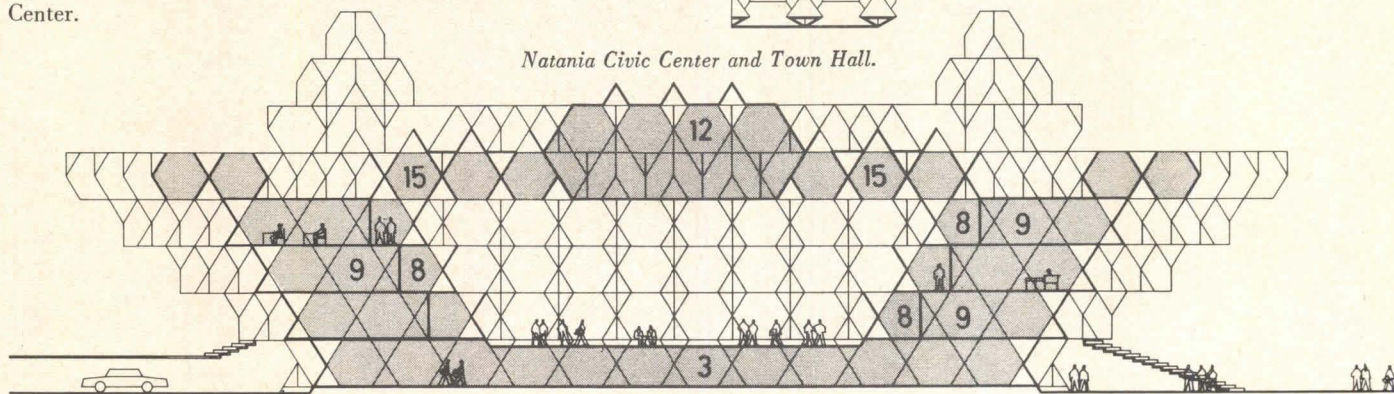
Bat Yam Civic Center and Town Hall. Strictly adhering to a formal geometry, Neumann, Hecker, and Sharon created a building with ample shade and an interesting pattern of natural light. Perched on top of the building like four folded-paper sculptures, concrete hoods protect openings in the roof that admit daylight to the space below. Interior spaces repeat the diamond panels of the exterior walls, which are enclosed with tiles frames between the exposed concrete structural frames.

Natania City Center and Town Hall. Triangular in plan and pyramidal in section, the proposed city center would be built with truncated tetrahedron units similar to those used in the Mediterranean clubs. Offices are grouped around a central court roofed with a space structure that overhangs the building.

Designed by Neumann and Hecker, the building develops some of the space arrangements and climatic protection principles introduced in the Bat Yam Civic Center.

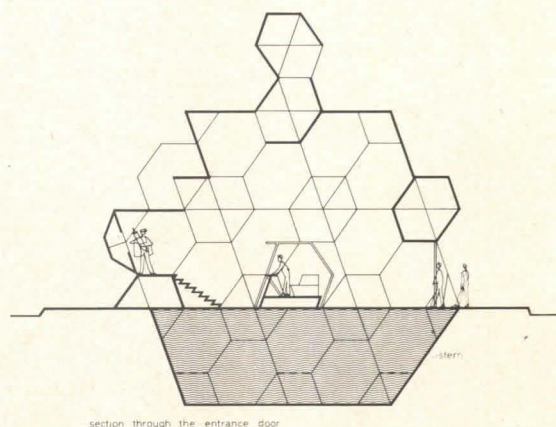
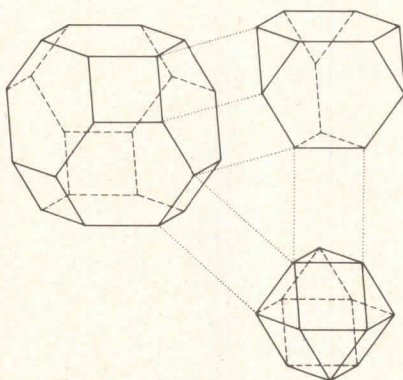


Natania Civic Center and Town Hall.

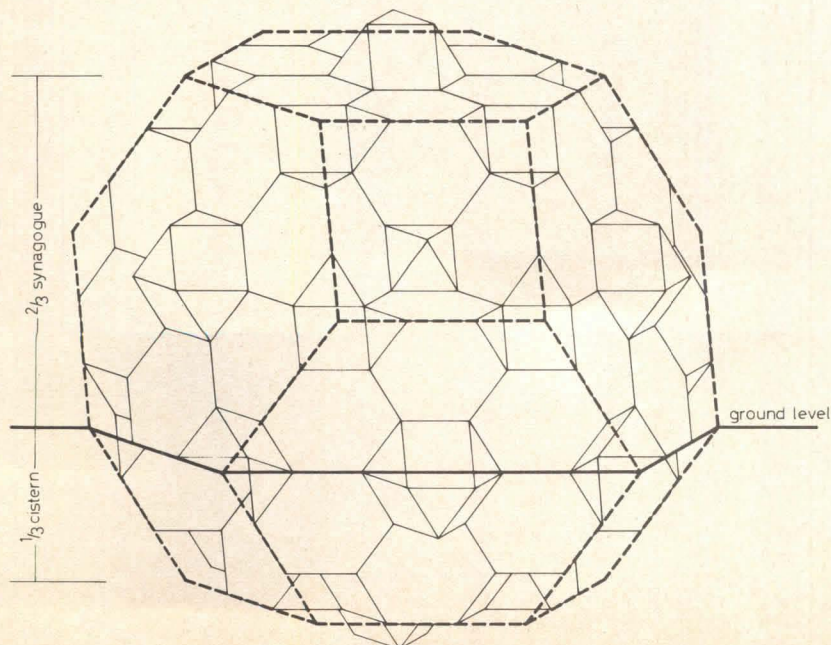
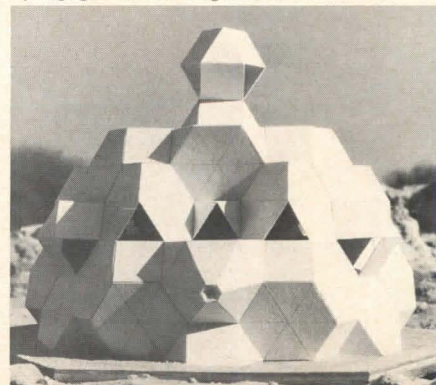


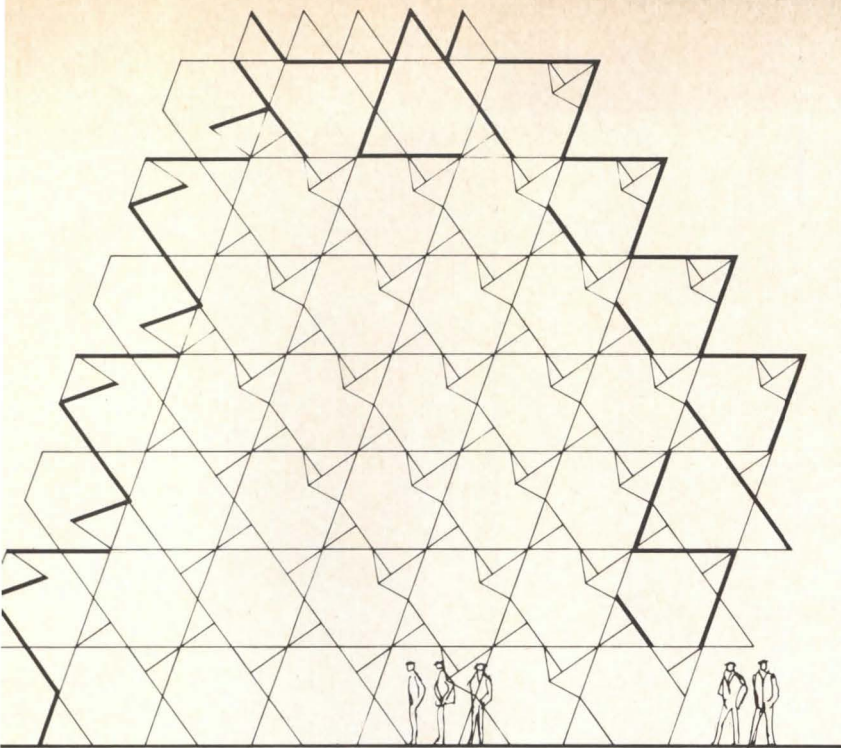
Synagogue in the Negev Desert. Three types of polyhedral units comprise the structure of the truncated octahedron forming the synagogue. Neumann and Hecker's familiar hexagonal panels are the basic building unit. The designers use the triangular spaces between these units for stained glass windows at mid-height of the structure. Windows for ventilating are built into suboctahedrons projecting from the building.

The synagogue is designed for a utilitarian purpose as well as a spiritual role: It sits atop a cistern that supplies water for nearby housing. Of its aesthetic impact, the designers said, "In the special desert conditions, the synagogue, by its height and wealth of form, would stand out very strongly against the monotonous background and the surrounding buildings."



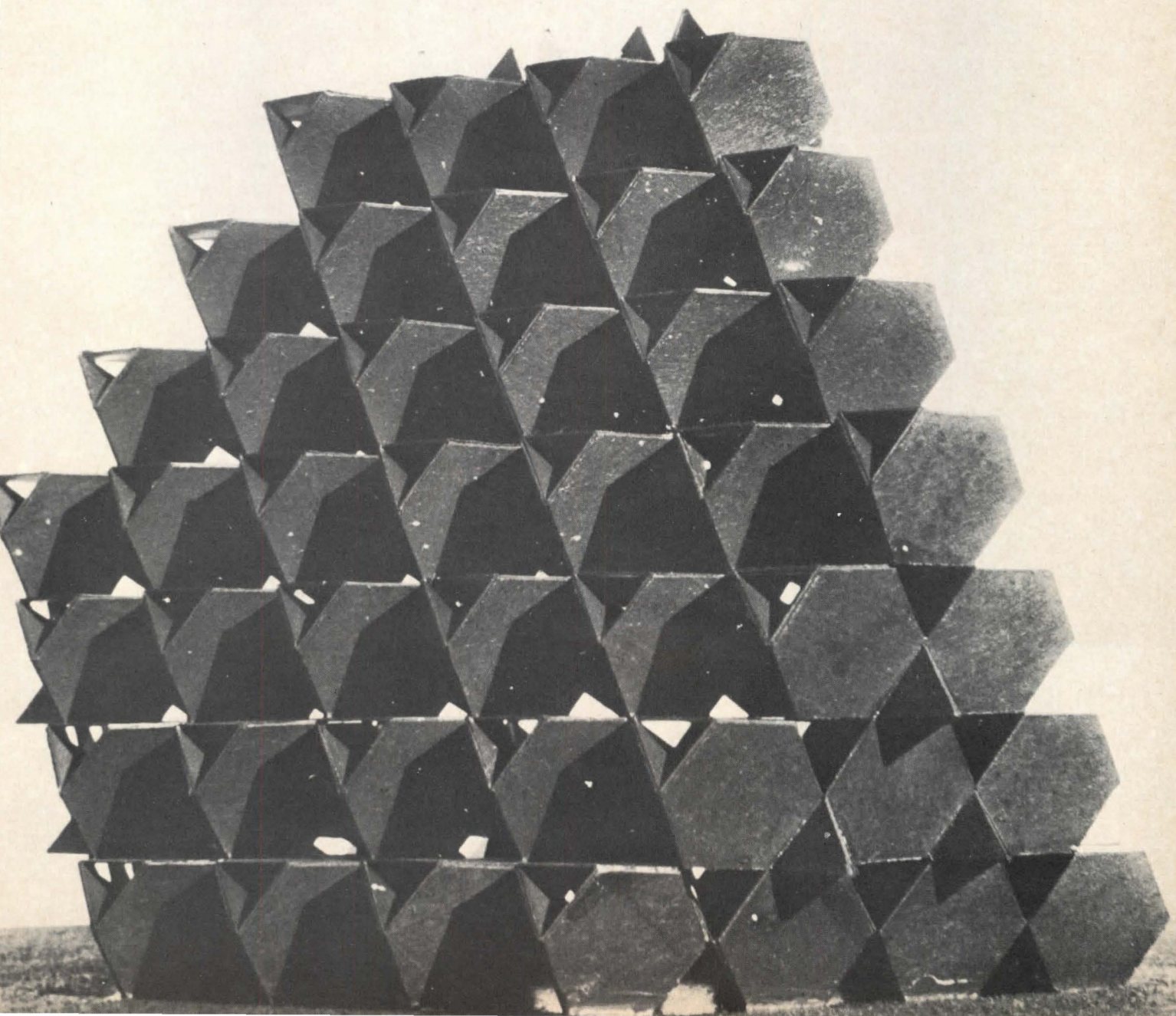
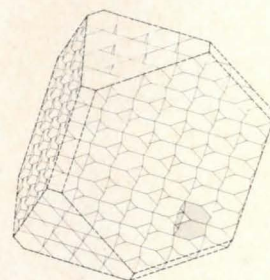
Synagogue in the Negev Desert.

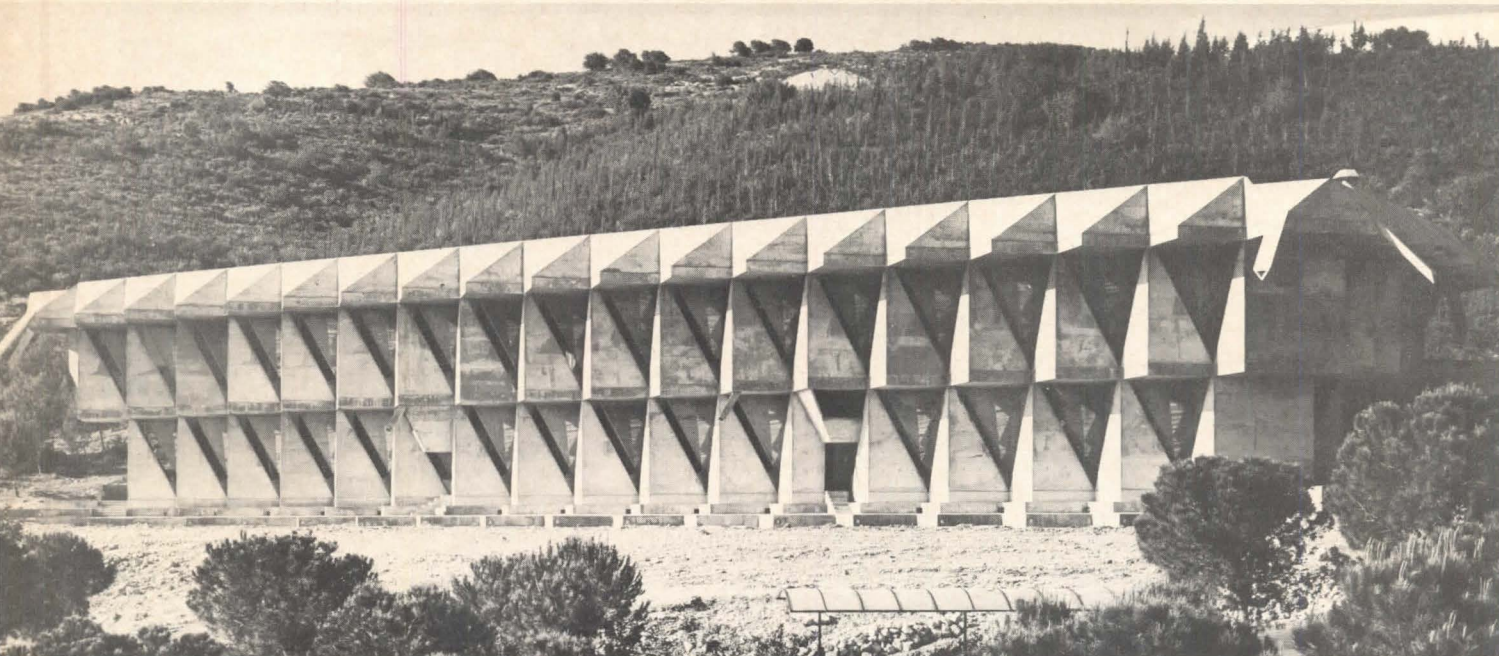




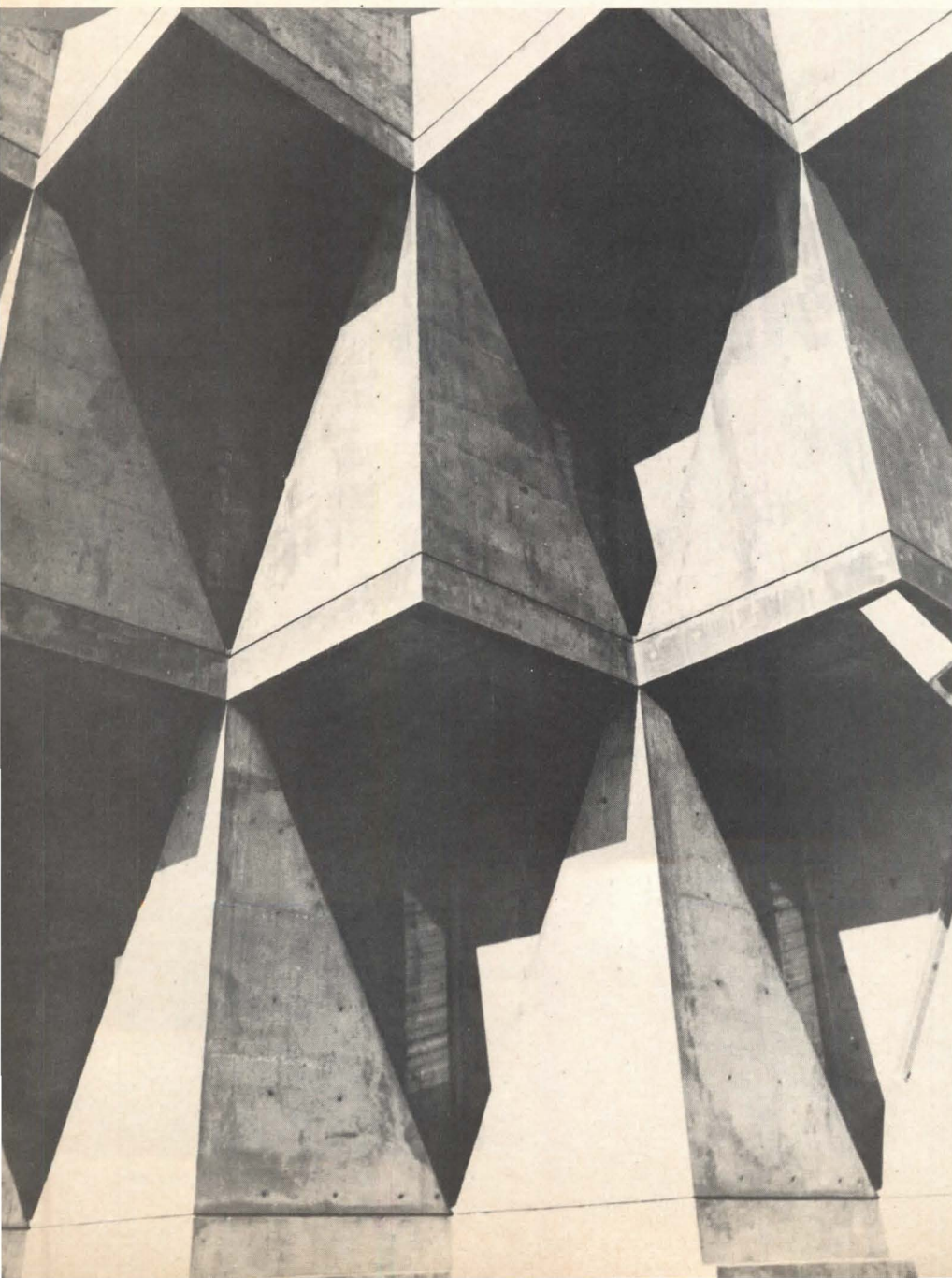
Synagogue project.

Synagogue Project. Polyhedral shells stacked into a large polyhedral structure will enable Neumann and Hecker to parallel the traditional pyramid form for a desert site. The shells create a wall about 10 ft thick, which leaves a large space within the pyramid. As with many of the firm's projects, natural light is introduced through triangular windows set between the hexagonal panels. Hecker thinks of this proposed synagogue as "a continuation of some trends in Gothic architecture transformed by modern means."





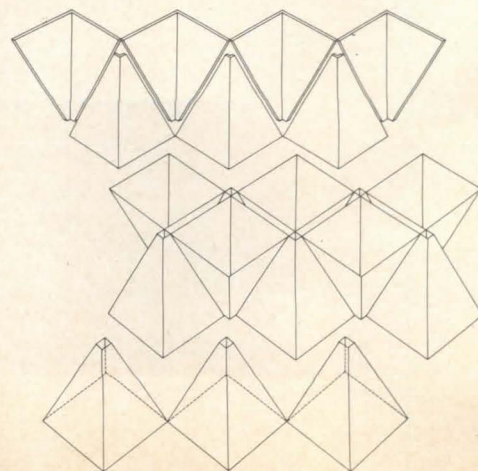
Israel Institute of Technology.

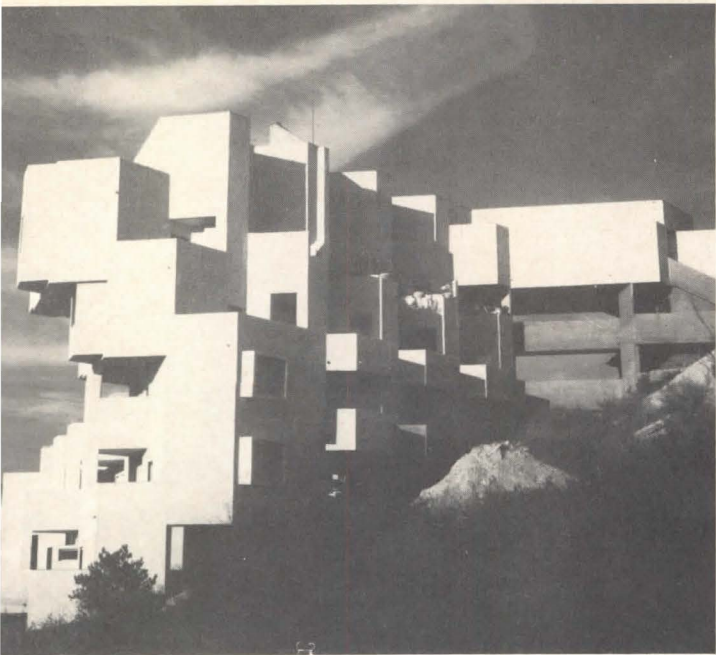


Israel Institute of Technology. Triangular folded plate elements serve as bearing walls and sunscreens for the Faculty of Mechanical Engineering buildings designed by Neumann and Hecker. The precast concrete folded plates, 14-ft high by 8-ft high wide, splay at 45°, and are 5½ in. thick. Wall elements are staggered to provide shade, and narrow windows are tucked into the wall between triangular units. The saw-tooth contour of the two-story buildings cast shade upon the ground to minimize heat reflection.

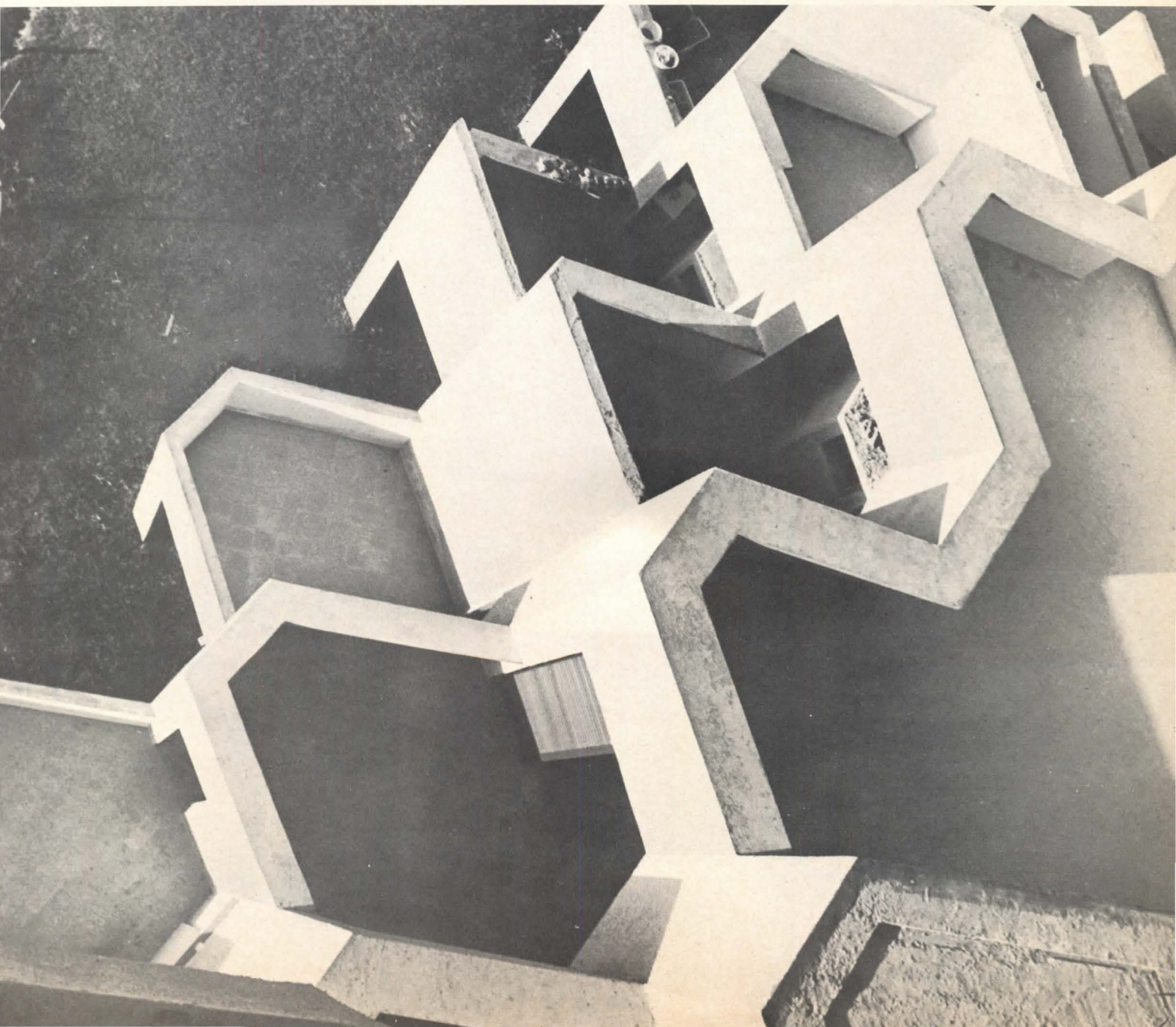
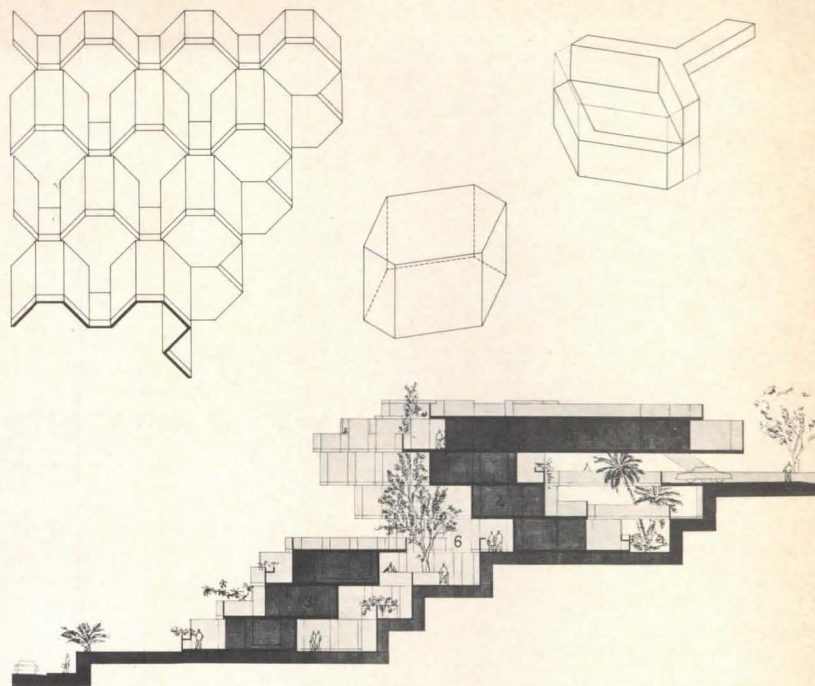
Apartment Building, Ramat Gan. Taking their hexagonal concept another step forward, Neumann, Hecker & Sharon built hexagonal concrete prisms and stacked them on a hillside site. Above the third floor, they changed the form and cantilevered the prisms out in overhanging stories. The top floor also bridges back to the ground to provide an upper entrance to the building.

A major feature of the apartments is the half open and half covered polygonal terraces with rooms facing and opening around them. The architects say that the building combines the local traditional small house accommodation with the many advantages of apartment living.





Apartment Building, Ramat Gan.



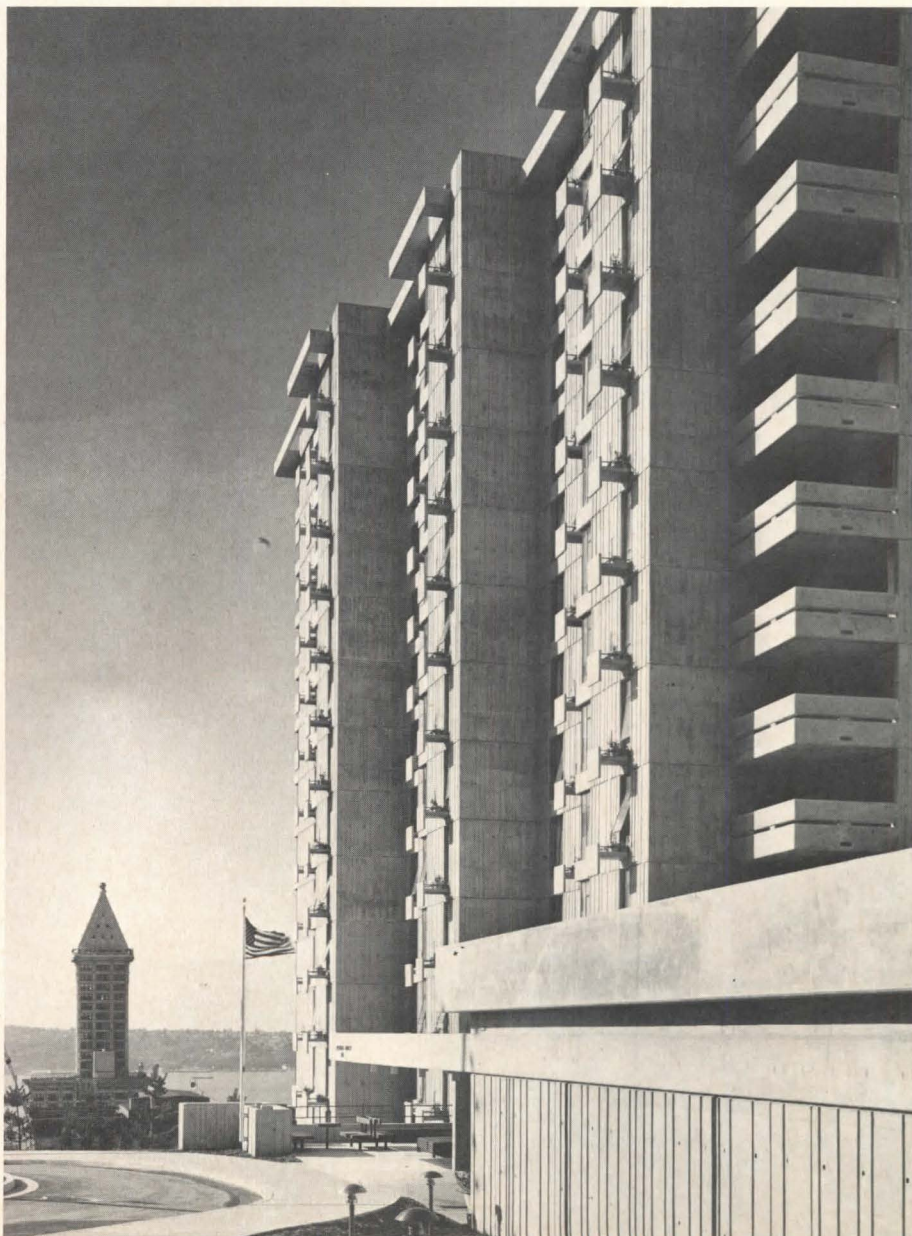
DIGNITY IN HOUSING FOR THE ELDERLY

Jefferson Terrace Apartments for the Elderly rise imposingly from First Hill in Seattle, commanding wide-screen views of Puget Sound, the city, and the mountains. On a site that falls from some 350 ft at the east to about 250 ft at the west, the architects, Kirk, Wallace & McKinley of Seattle, ingeniously staggered the 300-unit, 17-story high-rise on the slope and created jutting undulations in plan so that each tenant room has a corner window with a view.

The building provides 283 one-bedroom apartments and 17 two-bedroom units, plus central laundry facility, manager's offices, mailroom, lounge space, and generous outdoor terraces and planting. A community center on the main level, which can also be used by elderly persons from the surrounding neighborhood, contains a recreation-meeting hall, kitchen, arts and crafts facilities, and general purpose rooms. The community center is all on one level, approached either from a public vestibule or, by ten-

ants, from within the building.

Because of the steepness of the site, there are five floors of apartments on the north side of the building before the main entrance and community center level are reached. To accommodate the plan to the terrain, these apartments are single-loaded on the north side of the corridor. When the building leaves the ground, from floors six through seventeen, the apartments are double-loaded with the corridors running east-west. To avoid long, depressing, institutional halls, they have been designed with elbows and jogs conforming to the zigs and zags of the plan. Another considerate touch is the provision of little seating areas with windows for views at corridor terminations, an amenity that should be required in most speculative apartment buildings to prevent corridor-phobia. There are also seating provisions near elevator lobbies, where old people can chat without having to make the trip all the way down to the public spaces.

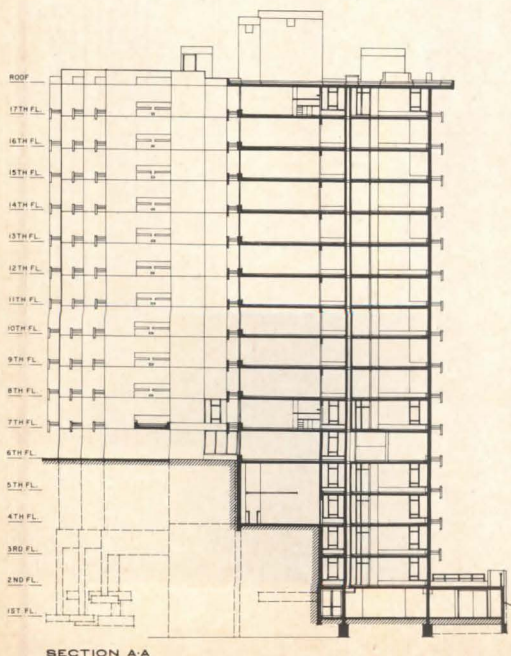
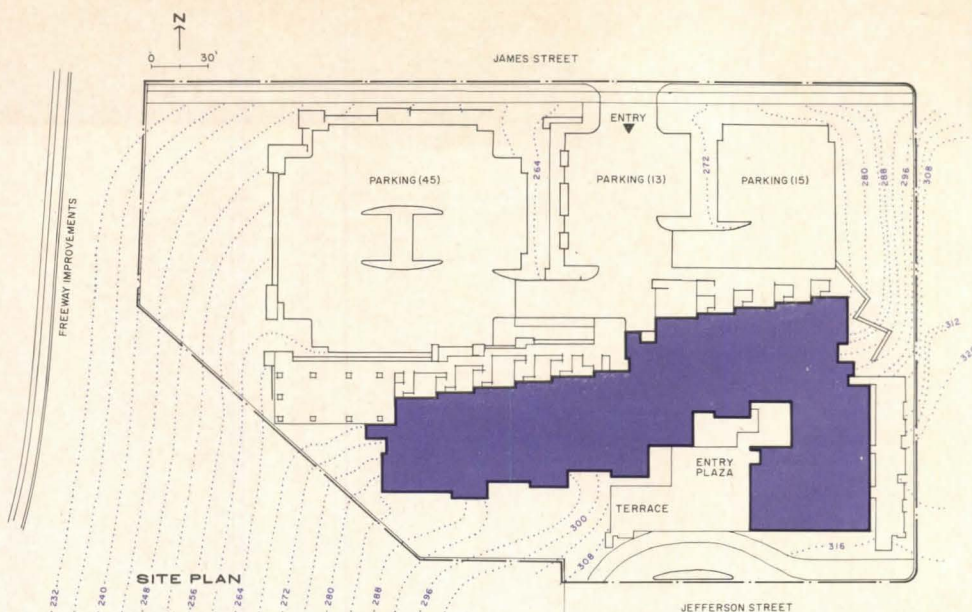


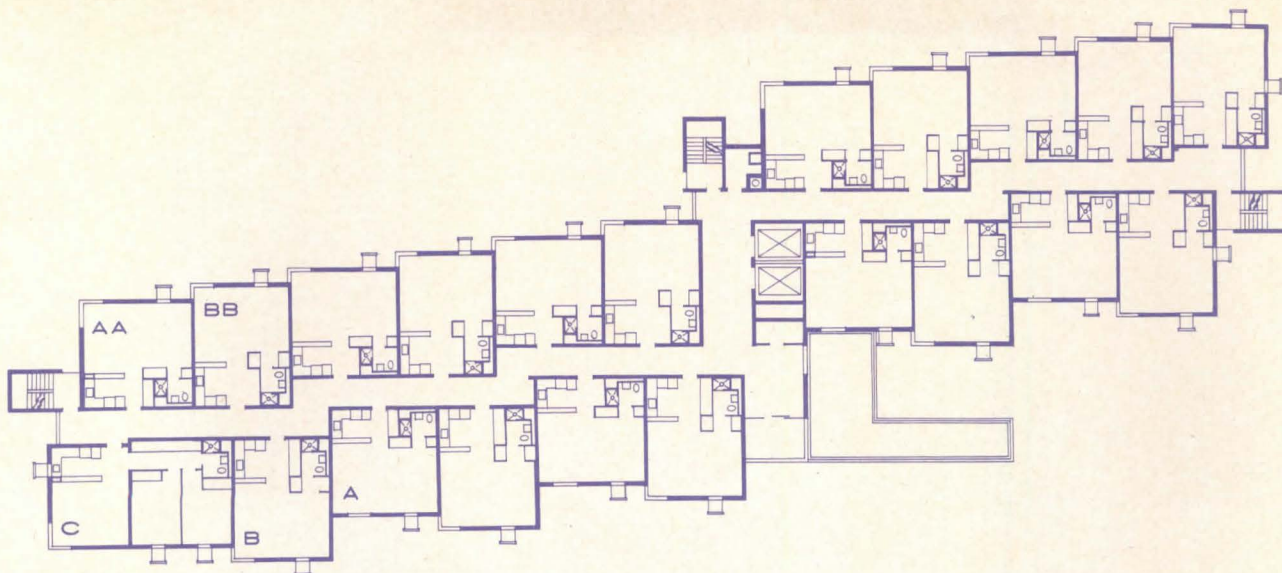


A complete prototype duplex arrangement was constructed by the Seattle Housing Authority before undertaking Jefferson Terrace, in order to analyze space allotments, built-in and cupboard arrangements, and other matters. It was found that the plan works so efficiently that each apartment unit can actually be below the maximum area permitted by public housing standards, even though each was designed with wheelchair-borne tenants in mind (the one-bedroom unit is approximately 440 sq ft). Emergency alarm and smoke detection systems are located in each apartment.

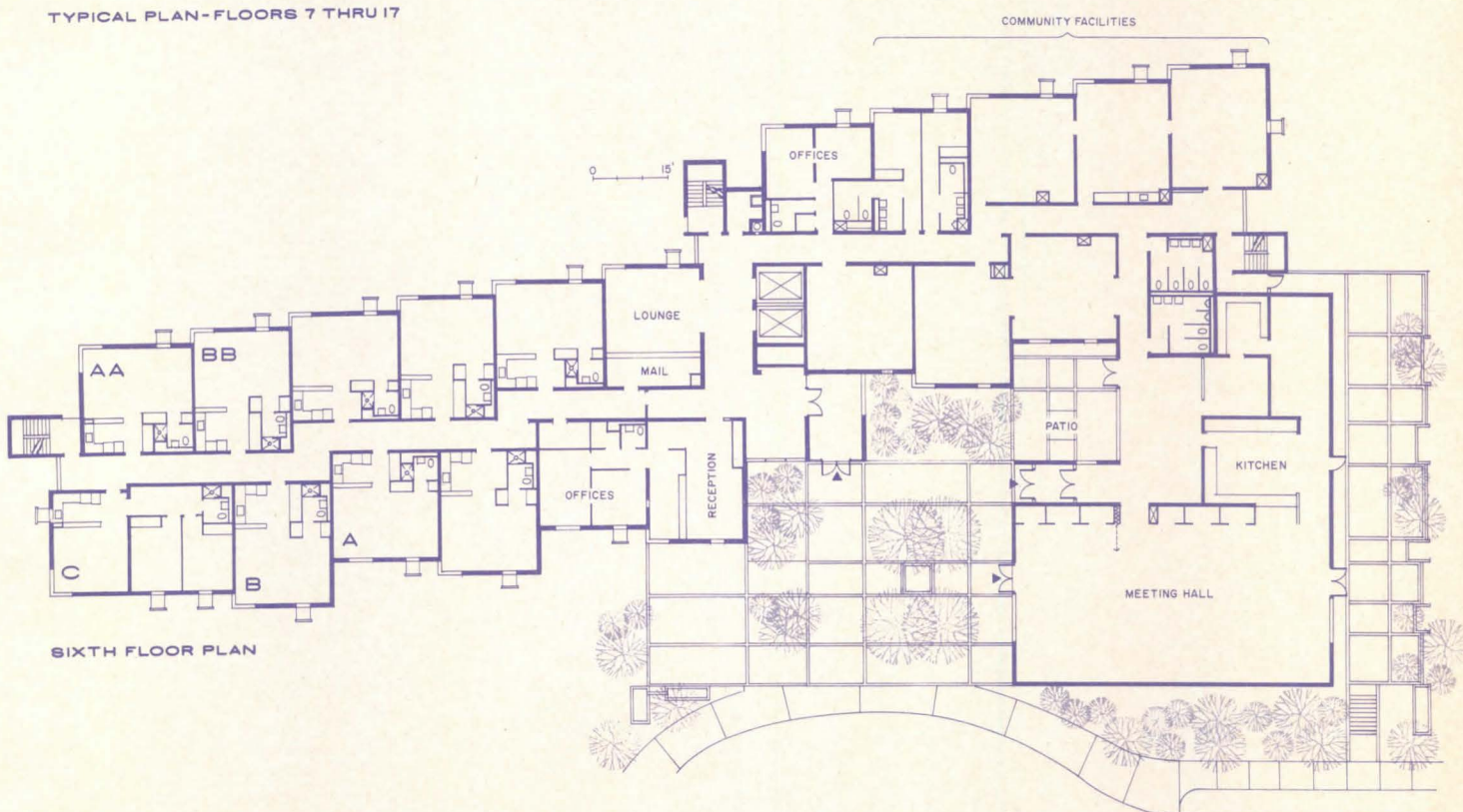
As though they feared that the expressed, board-formed, reinforced concrete structure, while somewhat awesome in the way it rides the crest of its hill like a great gray ship's prow, might seem a trifle too strong a statement for housing for the elderly, the architects provided a gentle human touch in cantilevered window box ledges outside each bedroom window. These not only serve for potted plants to enliven the severe façade and give it warmth and life; they also, with the provision of a sort of free-standing concrete spandrel extending below the support, form a sunscreen for the window below and a constantly changing play of light and shadow across the sides of the building.

Since Jefferson Terrace was planned under public housing rules for a municipal agency, it is pleasing to report that it avoids all the institutionalism usually associated with those strictures and sponsors. It is quite majestic, commanding a prominent position in the downtown Seattle skyline, and at the same time appropriately residential in its intimate spaces and the thoughtfulness of many details. The architects report with pardonable pride that "the construction cost of \$3,500,000 was \$20,000 below the allowable budget established by the Housing Assistance Administration, and included all site work and landscaping." Reception of Jefferson Terrace has been

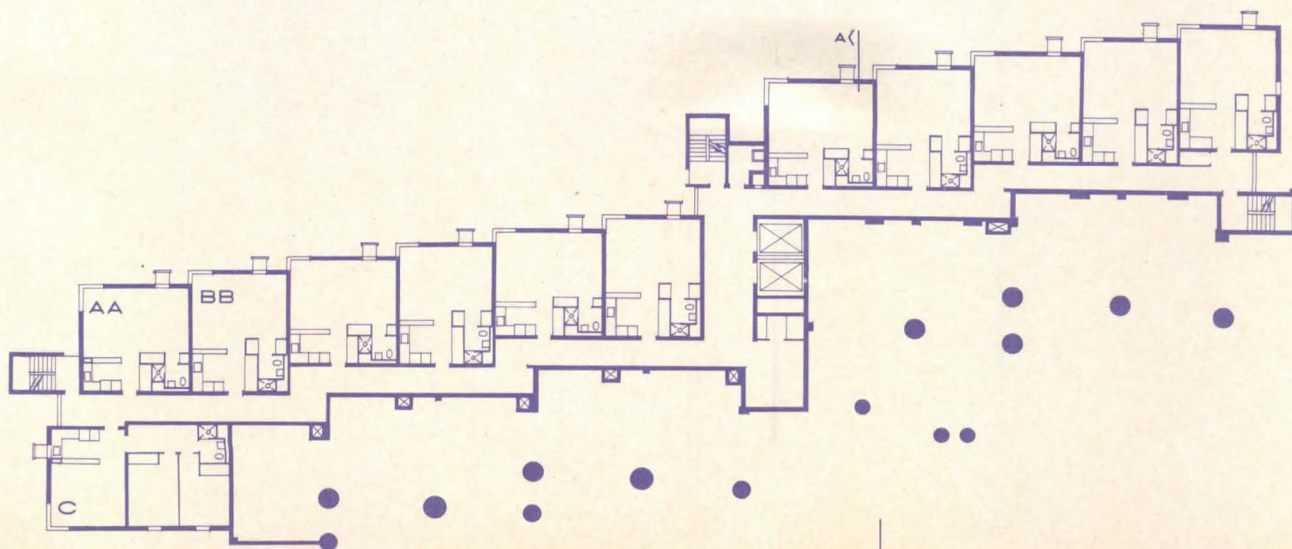




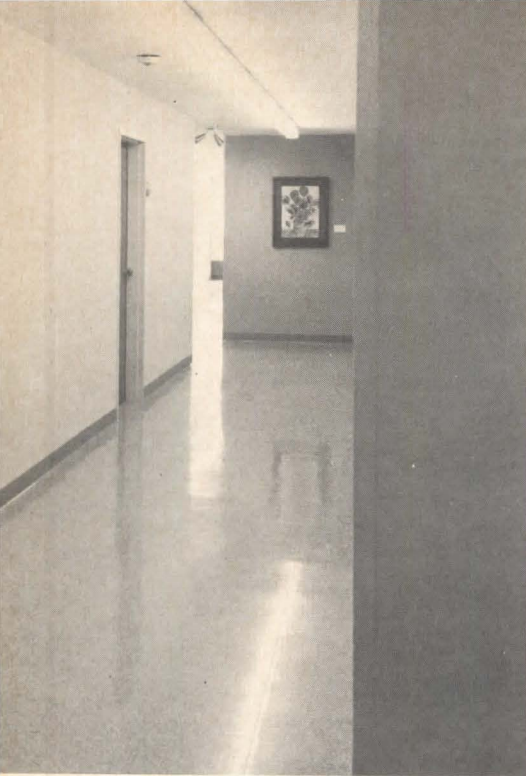
TYPICAL PLAN-FLOORS 7 THRU 17



SIXTH FLOOR PLAN



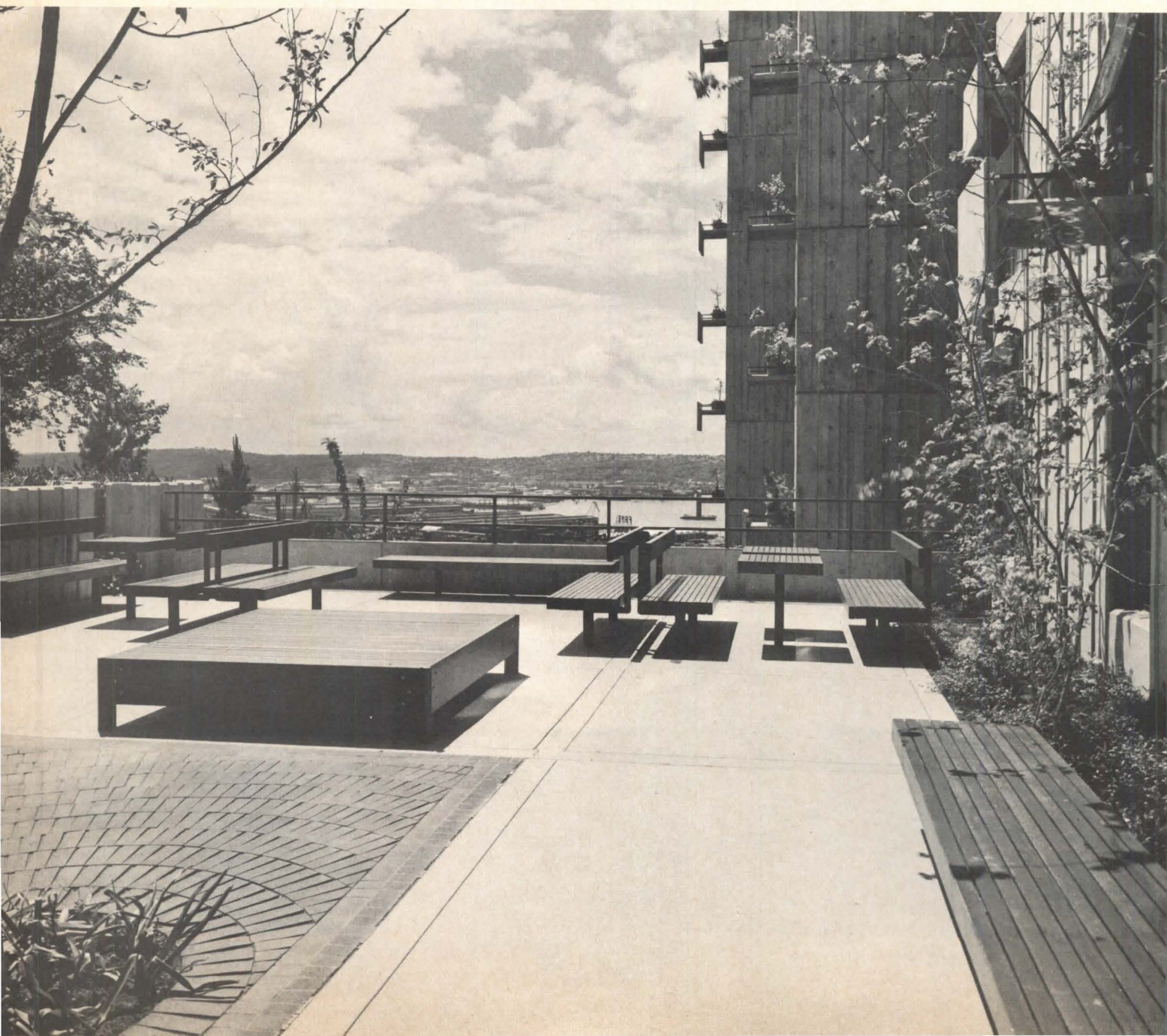
THIRD FLOOR PLAN

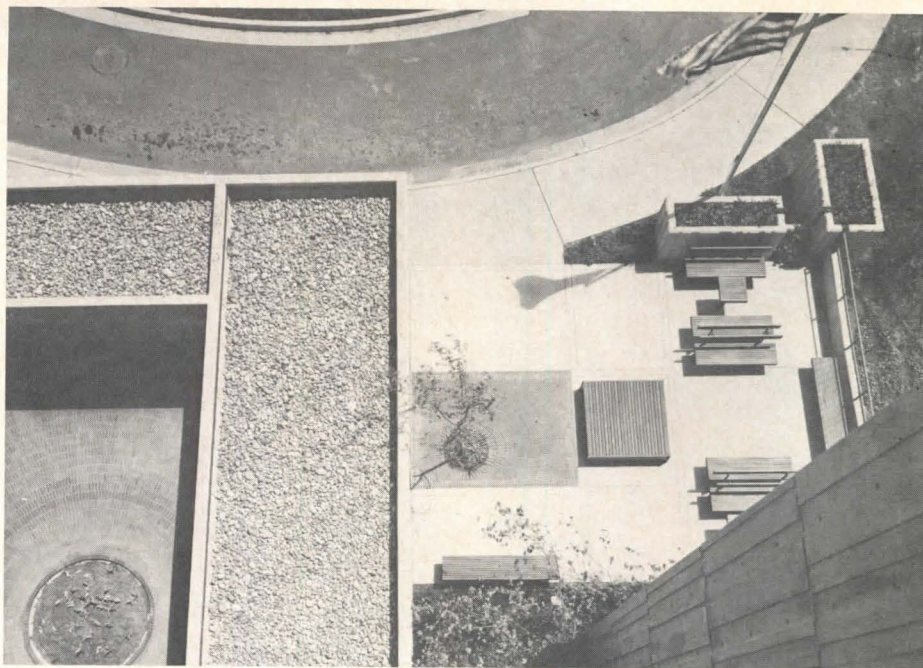


Corridor jogs and bends, preventing dullness.



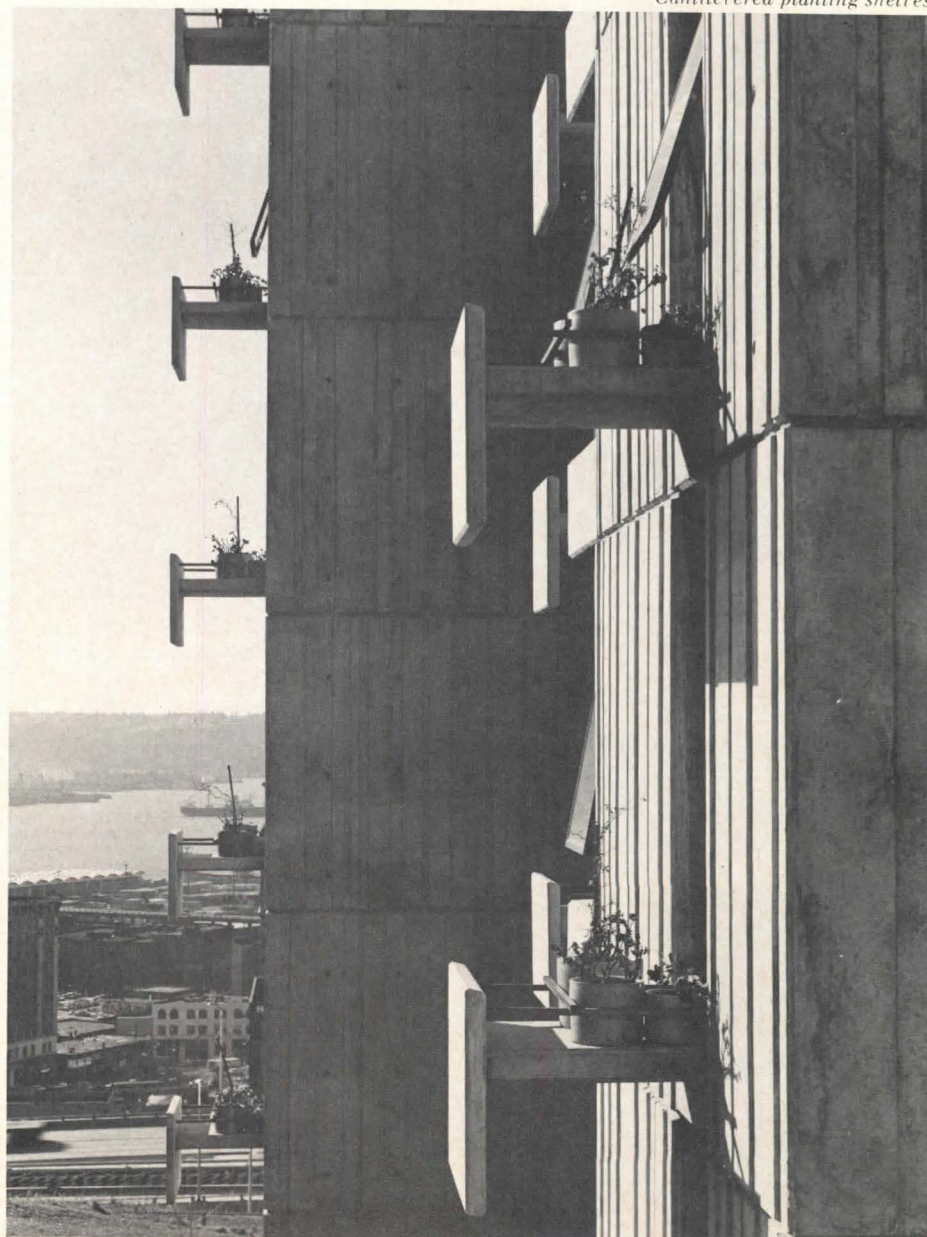
Views (above and right) of typical one-bedroom apartment arrangement.





Sitting area near tenant's entrance.

Cantilevered planting shelves.



gratifying. The architects say that "acceptance by the elderly clients has been very successful, and all tenants are delighted with their environment." Professional acclaim has been received in the form of a Merit Award from the Seattle Chapter of AIA and a Merit Award in the 1968 HUD Awards for Design Excellence.

JEFFERSON TERRACE APARTMENTS FOR THE ELDERLY, Seattle, Wash. Architects: Kirk, Wallace, McKinley & Associates. **Client:** Seattle Housing Authority; J. Ray Adams, executive director. **Site:** Precipitous site in older urban area of low-rise residential structures, churches, stores, clinics, and hospitals. Architect involved in site selection. Views were a factor in siting of building. **Program:** Provide housing for low-income elderly people, plus a meeting place for the occupants as well as other elderly persons living in the surrounding area. **Structural System:** Continuous 6-in. concrete bearing walls around each of the 460-sq-ft units. Cost factor prohibited interruption of bearing walls at main floor levels, so community structure was built free of main building block. **Mechanical System:** All areas heated by hot water, fin-tube radiation. **Major Materials:** Concrete and plaster for low initial cost and ease of maintenance. Neutral colors intended to provide background for exterior planting and interior paintings and furnishings. Concrete on exterior is form-board patterned. **Cost:** Budgeted, \$3,562,000; bid, \$3,542,000; actual, \$3,543,000 (including community center); or \$16.10 per sq ft. **Consultants:** Skilling, Helle, Christiansen, Robertson, structural; Benjamin S. Notkin & Associates, mechanical; Richard Hagg Associates, landscape architects; Marlene Lambert, interior designer; Sparling & Associates, Inc., electrical; Robin M. Towne & Associates, acoustical; John B. Sellen Construction Co., general contractor. **Photography:** Hugh N. Stratford.

OPEN PAVILION ON VIRGIN LAND

A few years ago, the architect and Pirkle Jones, owner of the house, took the initiative in developing its site, a four-acre parcel of wooded, hilly land, as five residential properties. By careful planning and by restrictive covenants, they have succeeded in creating a development that looks almost as if its houses had been preassembled and lowered onto virgin and undisturbed ground. A single road

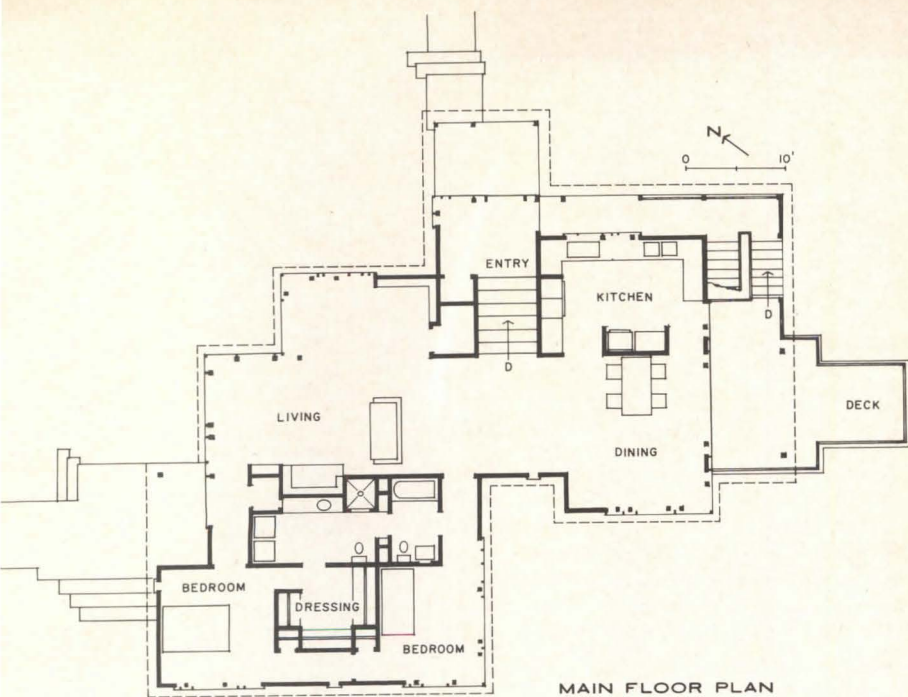


serves all the properties, and the driveways are as short and inconspicuous as possible.

Determined as he was to make the Jones house a graceful one in its setting, architect Schubart still did not indulge in any fake rusticity. The masses of the house are prismatic and flat-roofed, the trim detailing neat in a rather Taliesin-esque way. The woodwork, though unpainted, is manifestly machine-cut and nail-assembled. Thin, cornice-like ledges, detailed the same inside and out, pass through the broad window planes to give the house the character of an open pavilion sketched out in vertical and horizontal planes—some broad, some opaque—that intersect.

To keep the house from being overly egregious on the site, Schubart broke up its abstract character in two ways. First





From a distance, the variety of forms in the Jones house keeps its over-all geometric order from seeming too boxy. The broken rhythms of the siding and the uprights give constant variety to the composition.



of all, he broke up its over-all massing and the rhythms of its parts. He treated the house generally as a cluster of forms, rising to various heights. He varied the rhythms of supporting posts and of mullions, applied (with his own hands) a random-width vertical siding, treated the exterior balustrades and the pergola-like sunshade over a basement window as De Stijl-like or quasi-Japanese compositions of complicated form. Without making the composition seem disorderly, he thus softened the visual effect. Again, through the same means and through others, he made the onlooker constantly aware that this is a house pieced together with boards, joists, mullions, posts, and scantlings; in this way, the abstract composition has been realized in the truest sense—that is, turned into a thing. This is a house manifestly made of wood; even the tan cement floor has mahogany boards, their edges visible, embedded in it. To emphasize the woodenness, Schubart cheated a little: the concrete-block base-

ment is nearly invisible; the chimney is covered with wooden siding. Only the fireplace allows the masonry of the house to appear in any conspicuous way.

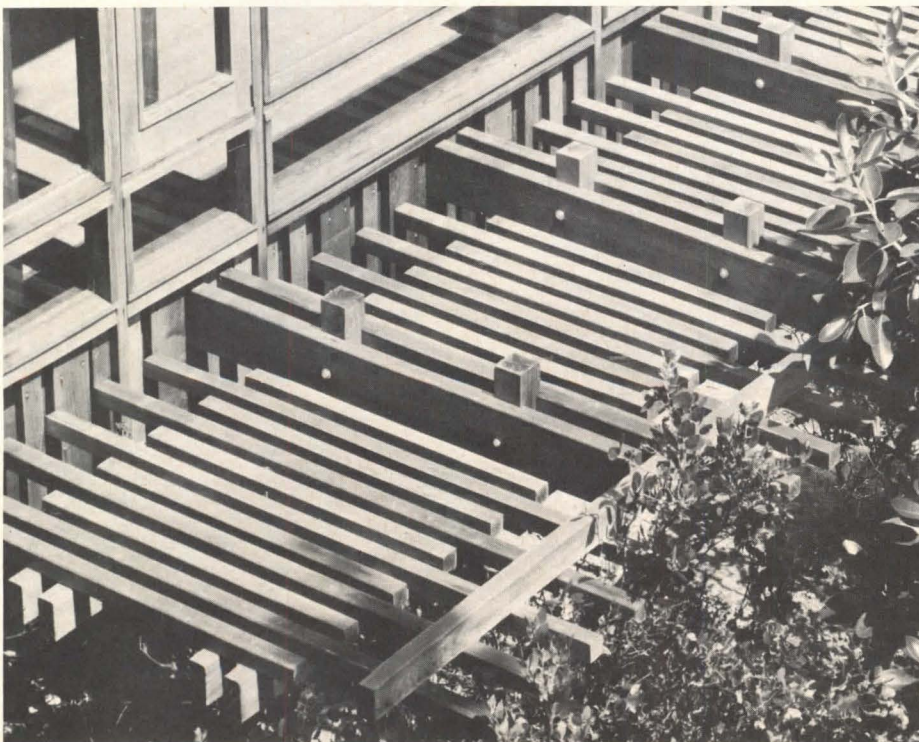
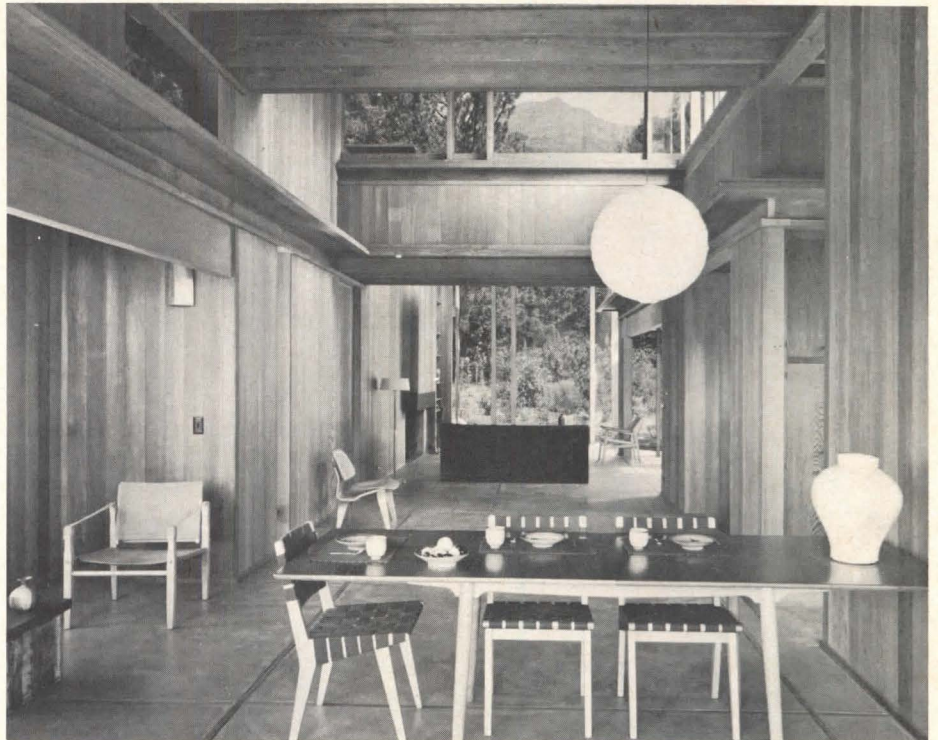
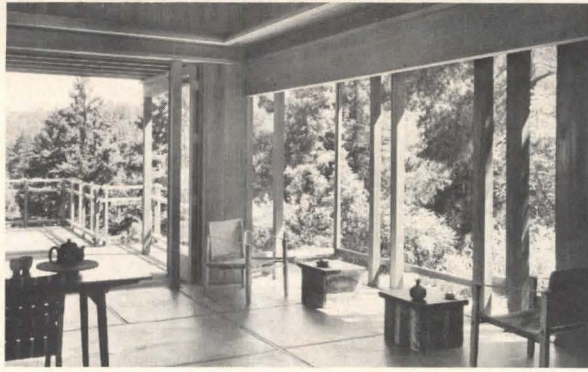
Generally, the house is a success, but there appears to be one weakness in the plan. The living and dining areas, treated as terminal features in a monumental suite are joined by a "crossing" area, which is lighted by a tall clerestory at the point at which the steps up from the entrance terminate. As the visitor climbs these steps, he sees a tall, nearly blank wall that gives him no hint as to which way to turn. The space that opens before him as he reaches the top is a lateral extension of the dining area, and it is toward this that he will, probably erroneously, tend to turn.

In other respects, the house seems perfectly satisfactory. The detailing is handsome, and the forest stands immediately outside the windows. The views are unspoiled; even the automobile is kept at a distance, at the end of a path.

The balustrades (bottom) have a sculptural quality. The living roof fireplace (below) is masonry, in connection with a sculptured metal lintel.



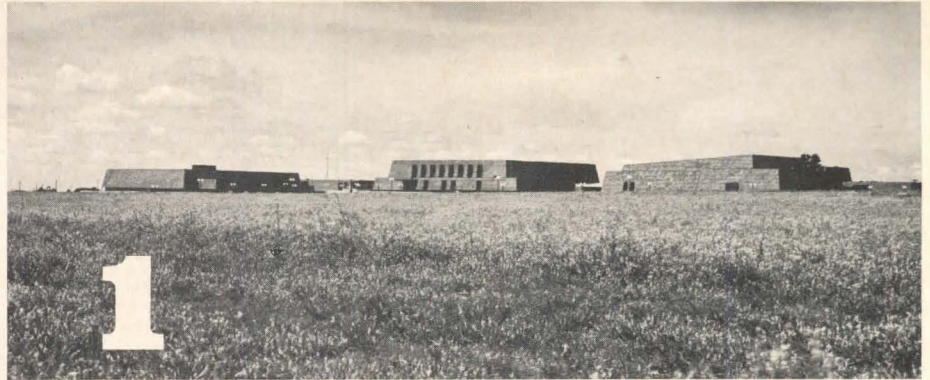
The living and dining areas (right, and below right) form a monumental suite, together with a clerestory-lighted lobby area (below) into which the stair corridor from the entrance emerges. The sunbreaker over the basement (bottom) is, like the exterior balustrades, a sculptural composition.



HOUSE for Mr. and Mrs. Pirkle Jones, Mill Valley, Calif. **Architects:** Schubart & Friedman. **Site:** A small, wooded subdivision in a valley, left in its natural state as much as possible. **Program:** To build a house for two photographers; darkroom to be provided. **Structural System:** Wood frame. **Mechanical System:** Radiant heating in floor. **Major Materials:** Redwood roof beams, redwood board-and-batten siding, redwood plywood ceilings, concrete floors with embedded mahogany screeds. **Cost:** Not given. **Consultant:** Richard O'Hanlon, fireplace sculpture. **Photography:** Pirkle Jones.

FEEDBACK ON THREE SCHOOLS

How are successful schools planned? Apparently, there are no rules for school design, only successes and failures that come to light after the school has been put to the test of use. The following discussion of three schools, located in various parts of the country, explains what proved successful and what did not in a traditionally planned school, a school designed to bridge the transition from fixed classrooms to open plan, and a school without walls.



BUTLER COUNTY COMMUNITY JUNIOR COLLEGE

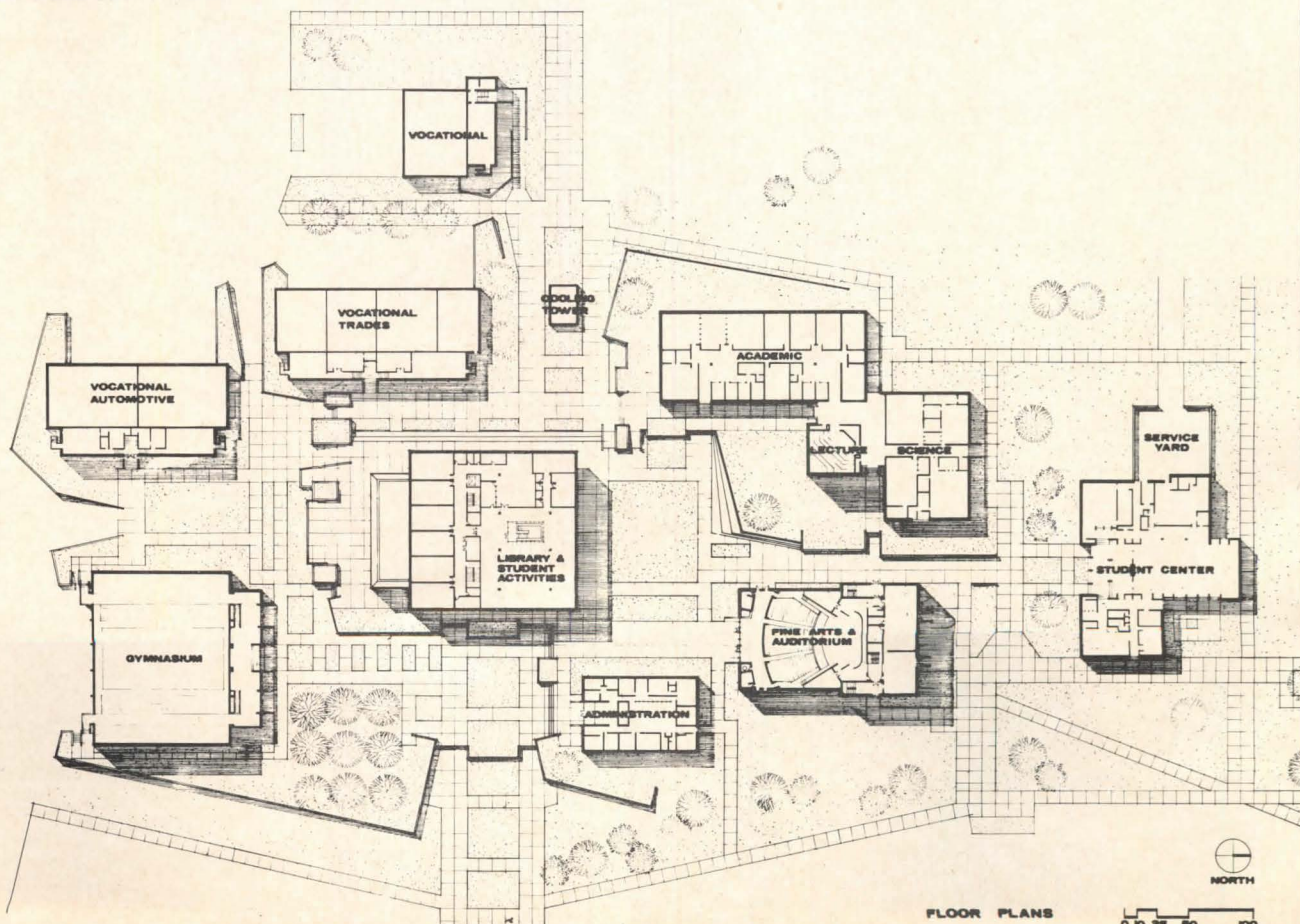
How do you transform an educational institution, barely more than an adjunct to a local high school and housed in a condemned building, into an expanding campus for 2000 enthusiastic students. Neither the architect nor the educator who performed this feat can say for sure, but on the premise that they must have done something right, we present this solution to a junior community college.

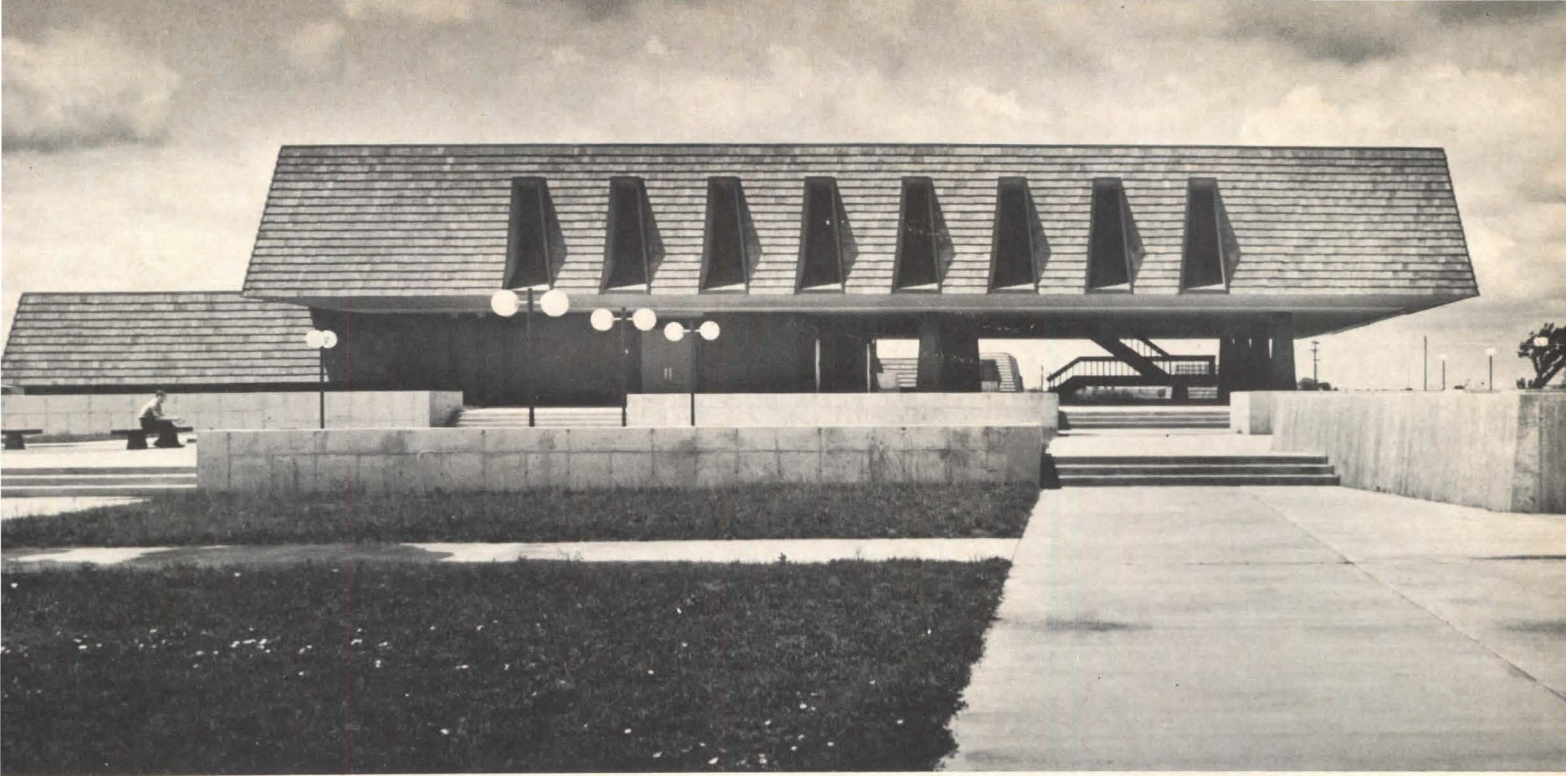
The campus plan establishes the college as a separate entity from its secondary educational buildings, identifying various building functions and providing the logical form of future growth. The matching building forms used throughout gave unity to the entire development, with the two-story library building acting as the heart of the campus.

The master plan anticipates growth of the academic, residential, and parking facilities; the remaining elements will remain as designed. The most significant architectural and planning contribution to the project, in the architects' opinion, is the development and utilization of the exterior spaces between the building elements. This theme of the inner-directed campus, combined with the strong continuity of building design, forms the basis of the architectural planning concept.

What Was Right? What makes this such a successful school? Why, on a site where, five years ago, 382 students occupied a condemned building, are there now 2000 students going to school and making room for more?

The school design displays little innovation in classroom planning. Stanton





Striking building façades enclose traditionally designed classroom spaces in this prairie campus whose enrollment has increased 500 per cent in five years.



Leggett, of Engelhardt, Englehardt & Leggett, educational planning consultants, characterized the approach of the college as "fairly conservative." That earmark of progressive education—"divisible space"—occurs in only one instance, and although with expansion a few more of these spaces may be added, the primary emphasis will remain on the traditional fixed, individual classroom.

The most distinct aspect of the campus is the unusual form of the buildings, whose splayed walls squat over the site like a covey of prairie chickens. They supply one of the essential program requirements, that of providing a uniquely individual and appropriate form to identify this Kansas school. Yet the success of the school is not due to its architecture. There are a number of schools, not nearly as successful, with unique form, and numerous schools with traditional fixed classroom planning.

The school architecture acts as a sign to attract students, and packs them in. It gives them an identity, but what holds them there is a unique educational philosophy.

Edwin J. Walbourn, president of the college, says that the small, fixed classrooms are essential to the educational idea. First, it makes teaching in small groups mandatory. Some of the students come to the college from high schools in which the total school enrollment might be as small as 50. Obviously, a lecture hall for 300 would be much too large. The traditional fixed classrooms also act as insurance against crowding and haphazard interior space juggling. In fact, they are an ultimatum to the community that more students demand more buildings.

More important than the rightness or wrongness of classroom space and build-

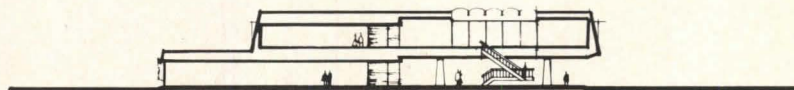
ing form is Walbourn's program pitched to a grouping within the community that has, for the most part, seldom had a family member complete high school, much less go to college. Forty per cent of the students begin in technical courses. Once in the school, every effort is made to encourage the student to continue on to complete four years of college. Credits earned in the vocational courses are not lost when the student transfers to a regular BA program. Pupils in the body and fender repair, welding and auto mechanic courses are integrated totally with the rest of the campus. There is no differentiation in design of classrooms, enrollment procedures, or athletic participation.

This is part of the school's larger philosophy, which helps keep the tuition low: \$4 per credit hour. There is no point in pushing the tuition up to a point where the community members can not pay it, says Walbourn. A family of 14 may have a great deal of difficulty in raising the \$4, and they are the ones who need education the most.

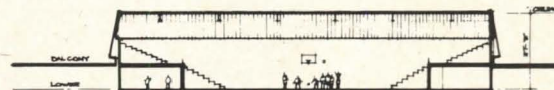
The thing that is probably the most right about the school has little to do with architecture, classroom planning, or the various paraphernalia so characteristic of modern educational concepts. It is simply a program that states that a man who can learn to repair an automobile fender can go to a college to do it, and that further implies that if he is smart enough to repair a fender he is capable of embarking on an educational journey that can lead to mechanical engineering, philosophy, and similarly rewarding courses of study.

What was done right at Butler College? In terms of movable, flexible space, and audio-visual, computerized plug-in's, Butler is all wrong. The success of the school does not detract from the value of sophisticated educational techniques, but it does illustrate that the right planning concept—i.e., movable, flexible space—must be used in the right school.

Boldly detailed interior spaces characterize the library (left), lecture room (center), and auditorium (bottom).



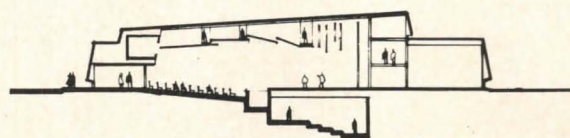
SECTION - LIBRARY AND STUDENT CENTER



SECTION - GYMNASIUM



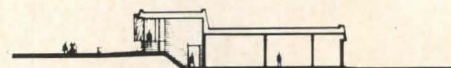
SECTION - LECTURE AND SCIENCE



SECTION - AUDITORIUM

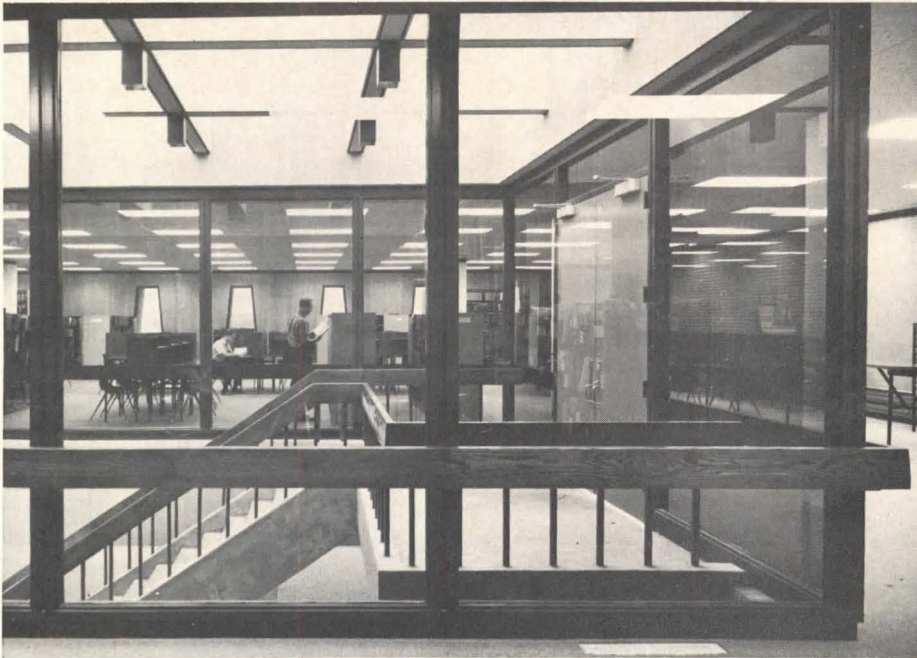


SECTION - VOCATIONAL AUTOMOTIVE

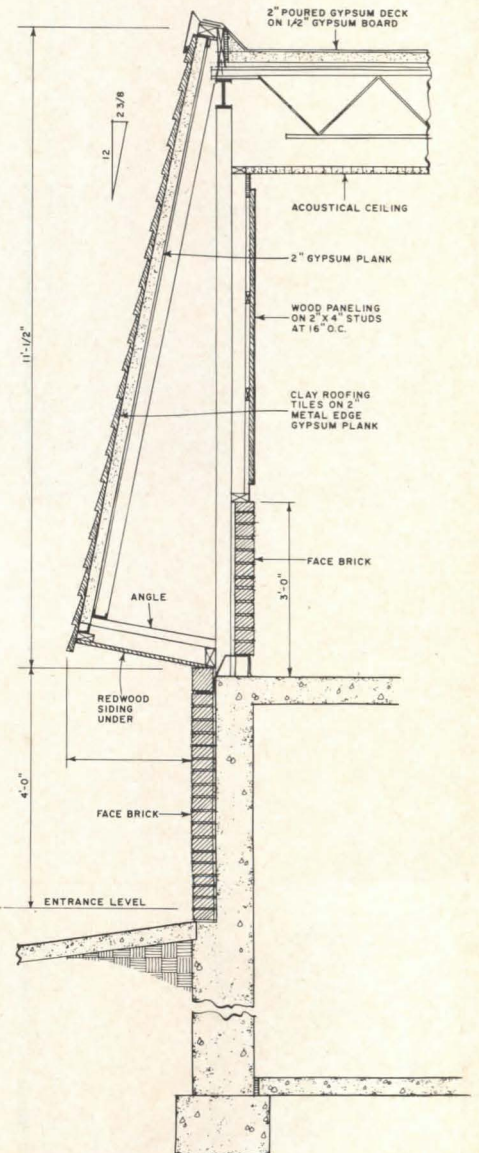
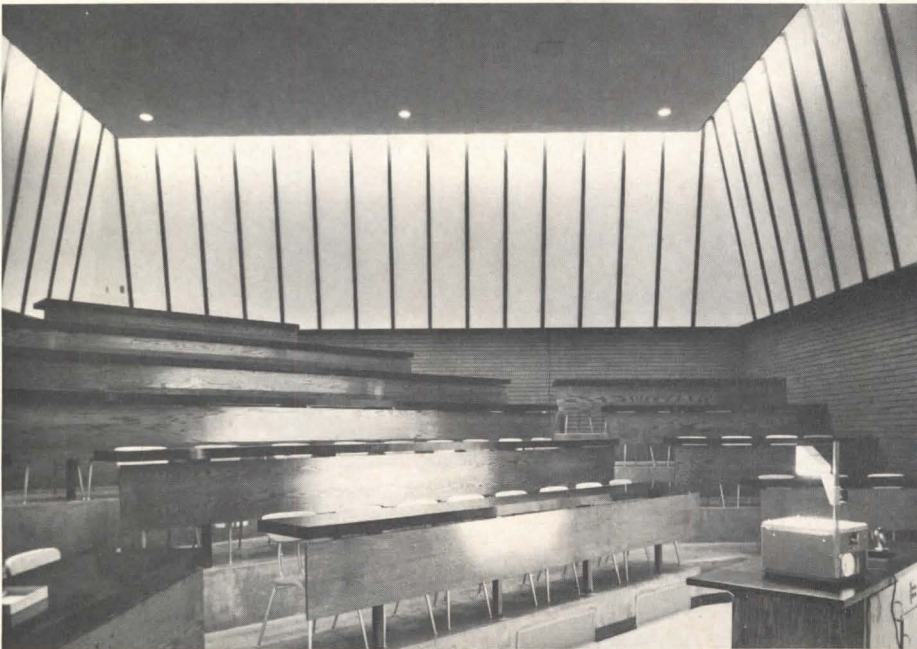


SECTION - VOCATIONAL TRADES

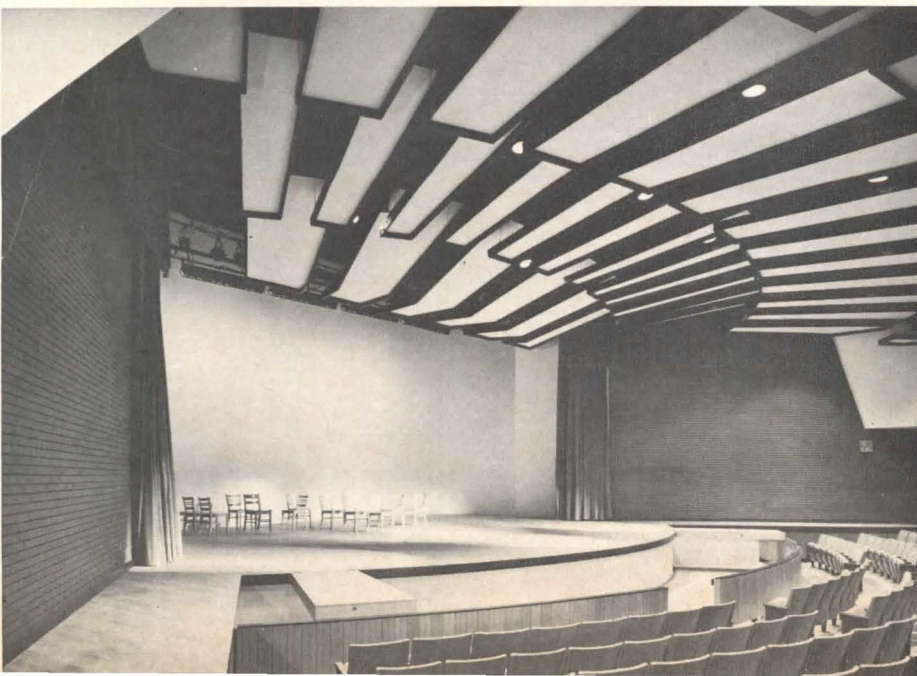
BUTLER COUNTY COMMUNITY JUNIOR COLLEGE, El Dorado, Kansas. **Architects:** Schaefer, Schirmer & Elflin. **Site:** 80-acre semi-rural, at the western edge of El Dorado, Kansas, located on a knoll surrounded by slightly rolling topography; buildings sited at a 30° axis from adjacent road. **Program:** Design a new educational facility to replace a condemned school building. **Structural System:** Reinforced concrete foundations and concrete floor slabs; roof framing of structural steel, long spans are rigid frames; brick walls to 3 ft high; sloping side walls above are wood framed covered with clay tile shingles; heating and ventilating units located within sloping side wall construction. **Mechanical System:** Hot and cold chilled water from central system supplied to unit ventilators for classrooms; air handling units for larger spaces. **Major Materials:** Brick; clay roofing tiles in natural tones; board-formed concrete retaining walls and concrete walks. **Consultants:** Professional Engineering Consultants, structural and mechanical; Englehardt, Englehardt & Leggett, educational; Bolt, Beranek & Newman, acoustical. **Cost:** \$2,000,000; bid, \$1,964,029; \$15 per sq ft. **Photography:** Julius Shulman.



Combined library and student activities building stands at the heart of the campus at the center of converging concrete walks and low retaining walls. Its second story overhang provides covered space for outdoor classes.



EXTERIOR WALL SECTION



HENDERSON JUNIOR HIGH SCHOOL

What was learned from a school predicted to be a laboratory for the problems of tomorrow's schools? Henderson Junior High School was to be a flexible system of spaces in which not only the student but the institution would learn, notes its designer, Byron Chapman. The worth of the design was attested to by its winning a P/A design award (JANUARY 1964 P/A) and its subsequent publication by the Educational Facilities Laboratories. What did the students, the institution, and the designer learn in this learning laboratory?

The school, notes the principal, J. Keaton, has worked to a certain degree, but all of its objectives were not achieved. One major complaint is noise control. The school should have been carpeted, and the barrel vault ceilings are a wrong design decision because they concentrate sound and help it to travel from one end of the building to the other.

Crowding adds to the school's difficulties; originally planned for 750 students, it now accommodates 937. Originally, the design called for adding facilities as they

were needed, to eventually accommodate 1600 students, but the bond issue to finance the additions was defeated.

Originally, there were plans for a summer school, expanded length of the school year, and staggered vacation periods in a quarterly system framework. These innovations were predicated upon the addition and rearrangement of space as conceived in the original design, but had to be dropped due to the noise factor, overcrowding, and lack of financing, according to Keaton. Nevertheless, the school is an improvement over the traditional, fixed classrooms. Experiments have been made with its larger spaces, and new teaching philosophies have been augmented, notes the principal.

Where did Henderson fall short and why? Among the first difficulties was that the original concrete columns and long-span steel trusses had to be given up in favor of perimeter masonry bearing walls with a line of columns at midpoint, thus curtailing the original concept of completely expandable, column-free space. According to Chapman, the architects had determined that the best arrangement of partitions would be to have them

touch neither the floor nor the ceiling. The post that occurred on the six foot by twelve foot module was intended to interconnect floor and ceiling. Baffles above the partitions as well as carpeting was to have deadened sound. When bids came in, cost cutting forced the use of vinyl flooring and the baffles were completely eliminated.

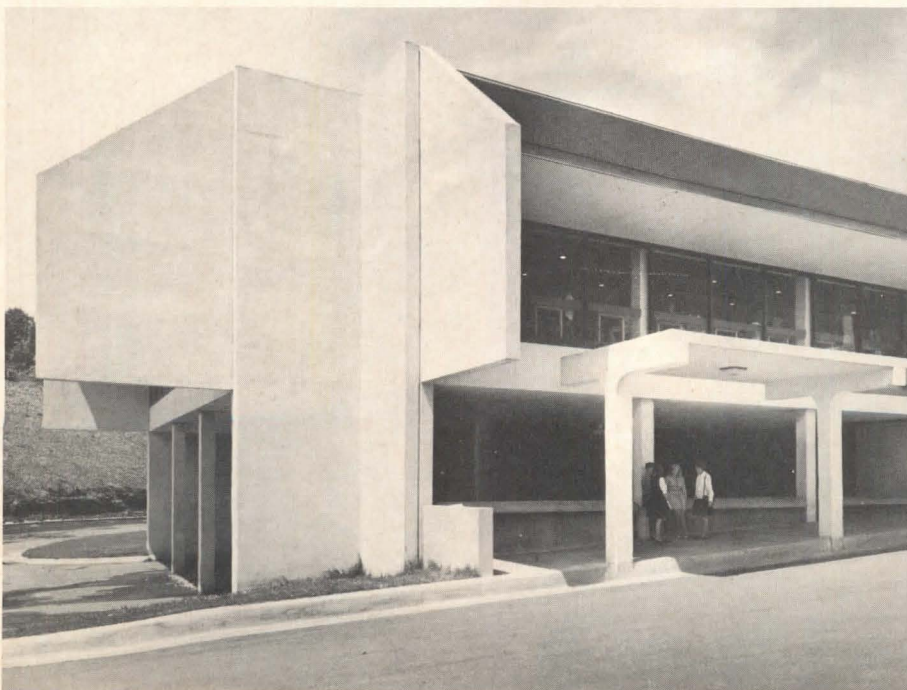
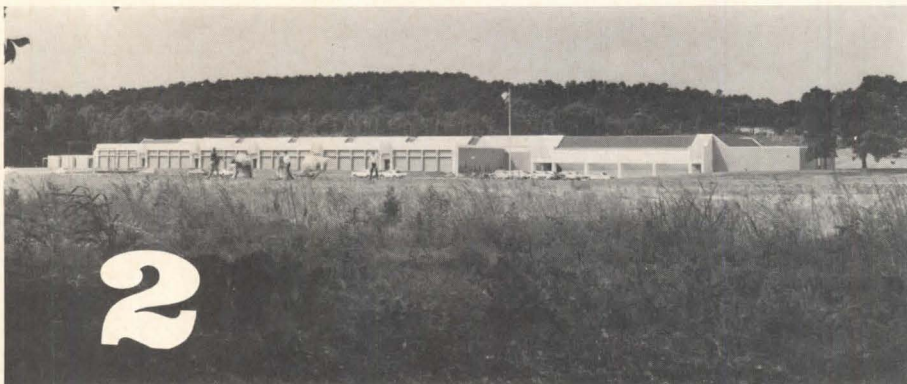
About a year after the school was in operation, it was admitted that the noise level was intolerable. As a result, half the necessary baffles were installed, and glass was used between the partition top and ceiling around two or three of the audio-visual classrooms. The result was that airborne sound became somewhat acceptable; however, at present the school is left with a "little noise," admits Chapman.

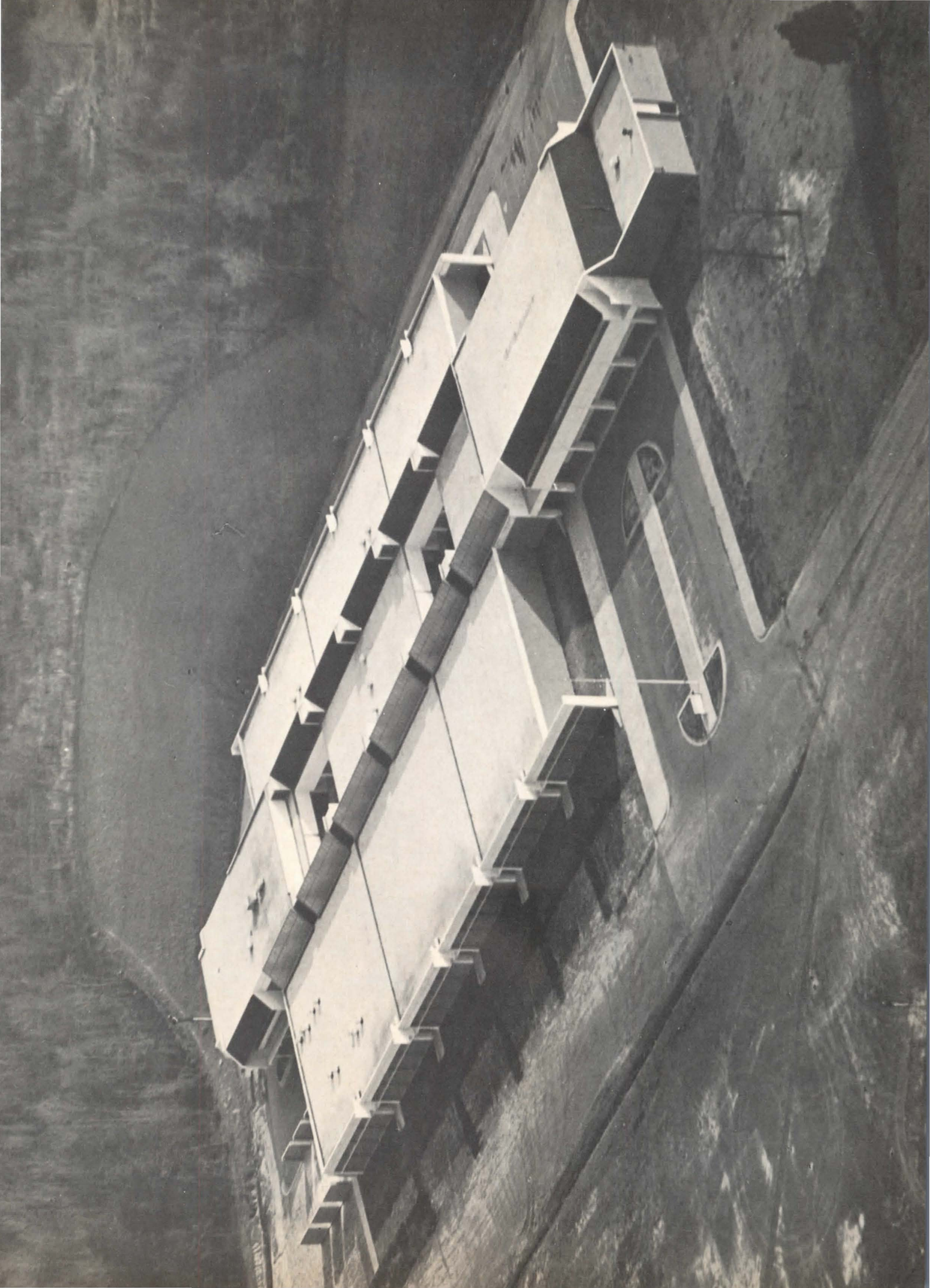
Partially because the rooms could not be arranged as had been planned, the community was reluctant to spend more money, notes the designer. The client was unable to move all the walls he wanted to. Part of the difficulty was a breakdown in communication between the users and the designers.

There is still the possibility of expanding the library as originally planned, and additional classrooms could be added at the end of the building even though the construction of a special orthopedic unit for handicapped children has somewhat limited the original concept of expansion flexibility.

Henderson Junior High School as an experimental school was intended to be, and remains, a somewhat flexible, transitional teaching structure. The main difficulty—that of additional financing—began at the bidding and continues to plague this "school laboratory." The problem is not unfamiliar to either school administrators or architects. The need for flexible school design is only exceeded by the need for flexible money.

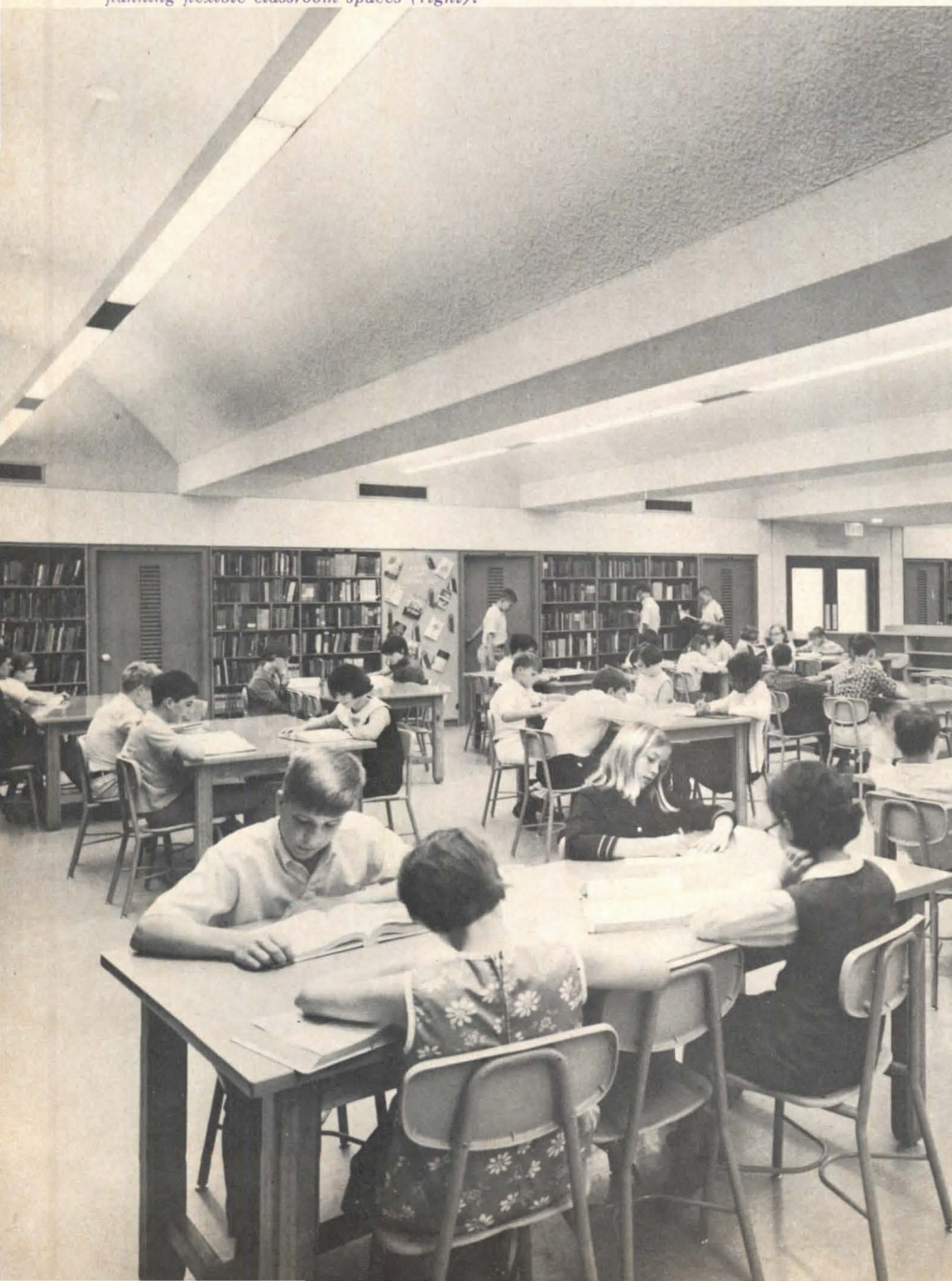
HENDERSON JUNIOR HIGH SCHOOL, Little Rock, Arkansas. **Architects:** Wittenberg, Delony & Davidson, Inc.; Fred E. Arnold, project architect; Byron Chapman, designer. **Site:** 46 acres of suburban land; school occupies a plateau between a heavily wooded slope and flat, treeless clearing suitable for future playing field. **Program:** A transitional school designed to evolve from traditional classrooms to flexible space to accommodate changing educational philosophies. **Structural System:** Reinforced concrete and masonry bearing walls, steel bar joists. **Mechanical System:** Air conditioned, hot and chilled water convector radiators. **Major Materials:** Exterior, brick and exposed rubbed concrete, steel and plastic skylights; interior, exposed block in main corridor, movable partition system. **Consultants:** Consulting Engineers, Inc., structural engineers; Blaylock, Cook, Dietz & Associates, mechanical engineers. **Cost:** \$1,179,453 for construction and landscaping only; \$13.94 per sq ft. Orthopedically handicapped unit, \$151,358; \$19.15 per sq ft. **Photography,** except as noted: Rush McCoy.







Clerestory illuminates longitudinal corridors flanking flexible classroom spaces (right).



Movable partitions and fillers divide adjustable classrooms.



PROSPECT VALLEY ELEMENTARY SCHOOL

The open-space concept is an experimental but continually successful educational approach whose proponents are usually more certain of its rightness than has been scientifically proven. The simple concept of eliminating walls is countered by a complexity of newly engendered

teachers-student relationships. The success of schools without walls depends on teacher response and student conditioning to this radical change in the traditional school space.

Open-space planning is usually introduced on an experimental basis as part of a traditional classroom package. There have been a few completely open-plan

schools, but not enough to standardize problems and render solutions commonplace. The rights and wrongs are still of considerable interest to the profession. For this reason, we present this design of "Kinderlandshaft," a school that went all the way in open planning.

A primary planning objective was that of individualized instruction for all of the students. The building also sets a precedent for elementary schools in the area and is the first one without walls, with no fixed classrooms, and with an instructional materials center.

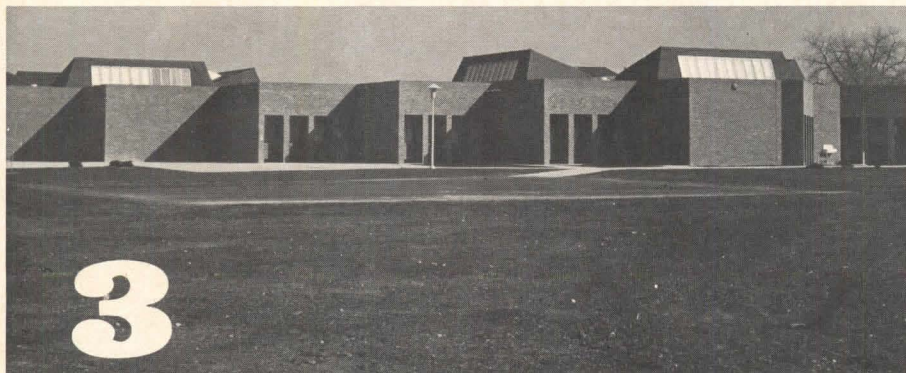
The instructional materials center (IMC) is the heart of the building. Clustered around it are the equivalent of 18 classroom and two kindergarden spaces. The school was designed for about 600 students but has not yet reached its full capacity. It opened in 1967 with kindergarten through fourth-grade classes and is in the process of adding fifth- and sixth-year students. The IMC is at the center of the fourth-, fifth- and sixth-grade area. It is also available to the lower grades.

How Does It Work? The architects were asked to submit their comments on the function of the school after a year's operation. The following is a summary of the findings as presented by Victor D. Langhart.

Prospect Valley has functioned exactly as intended, according to the educational program presented. Although still not at full enrollment during the school year, the school has operated as a summer school and training ground for other elementary-school teachers destined for open-plan schools within the district. During this summer training period, it has operated satisfactorily at a level well above enrollment capacity.

Since the opening of Prospect Valley, Roger, Nagel, and Langhart have as coordinating architects, and in association with other architects, opened six additional open-plan school additions and are presently planning two more.

Their experience indicates that acoustical floors and ceilings are desirable, which is in conflict with the findings of the EFL report on open-plan schools. The EFL report indicates, notes Langhart, that reflective or hard ceilings are desirable for voice projection over large distances for group activities. This is true, he says; however, voice projection can be obtained electronically with small, portable voice amplification units that reduce sound reflections. As a result of this finding, open-plan schools presently under design in the district have acoustical floors and ceilings. Prospect Valley opened with many teachers trained and prepared to work in open-plan facilities with some teaming, but some of the teachers were not fully prepared for the facilities. There was also a certain amount of confusion evident in students who had previously occupied self-contained classrooms and had not been pre-



pared for the open-plan concept. By now, most of these problems have been resolved and the individualized education process is working, reports the architect.

The lights have proven somewhat unsatisfactory. One can see a great distance in open space, bringing light fixtures on the horizon into the field of view. This glare problem is under study.

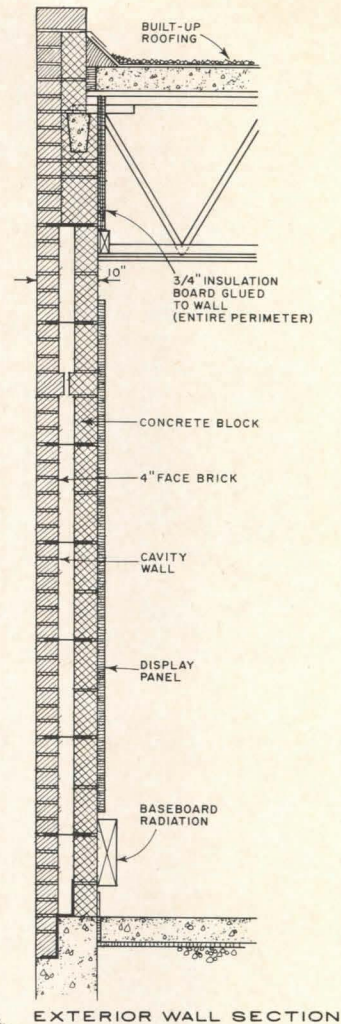
One of the most unsatisfactory experiences was trying to adapt standard classroom furniture into open-plan space. Traditional individual desks and chairs present a problem in that they are not easily moved, nor are they "compressible" for group activities.

EFL provided a grant to the Jefferson County School District to study this di-

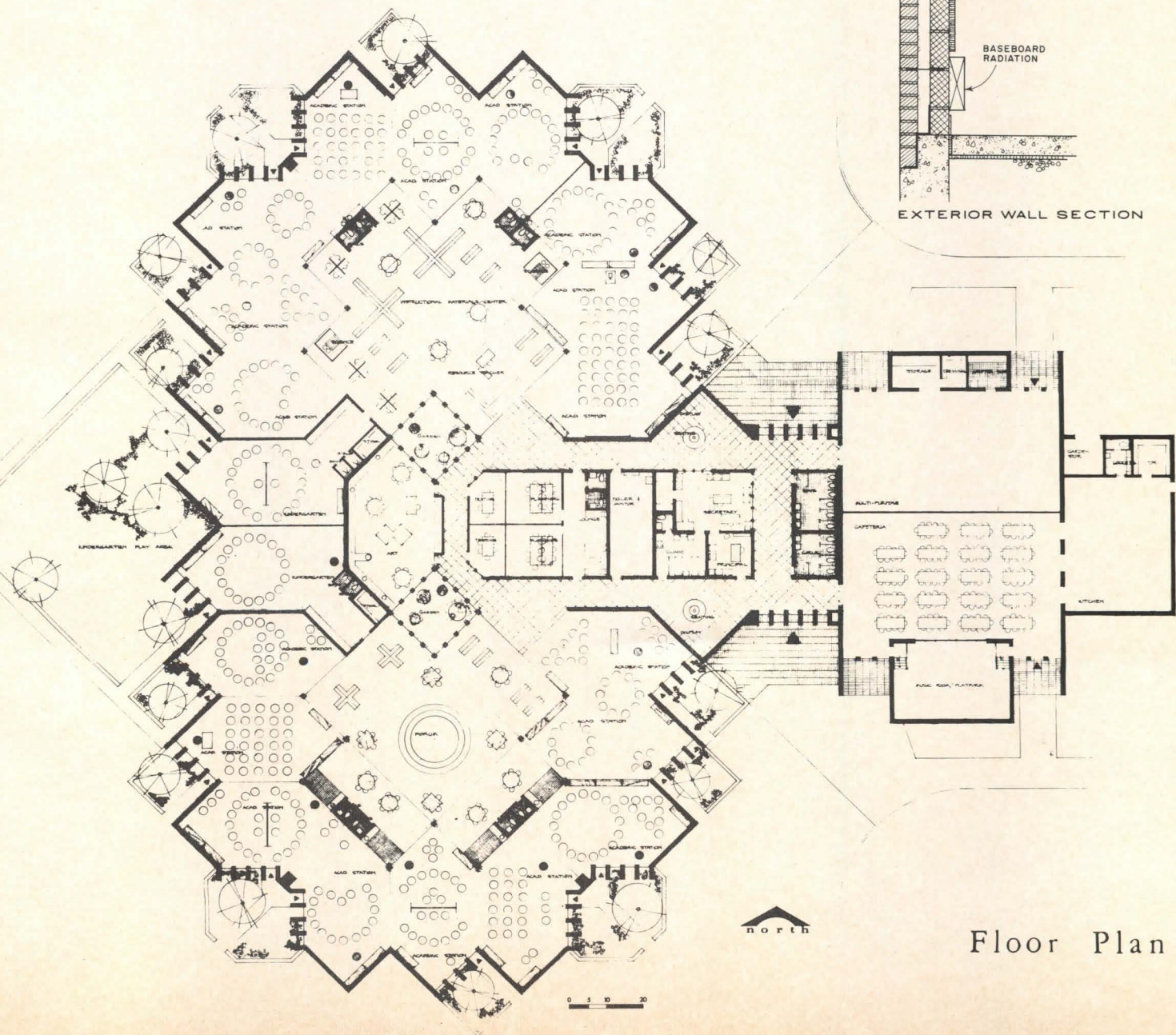
lemma. The architects and their interior design department researched the problem and have come up with a simple system of components that are light, movable, and compressible.

Architect Langhart concludes his summary of results by saying that "One must visit Prospect Valley while the children are in the learning process to appreciate the education program and the environment that houses it to understand the type of revolution taking place."

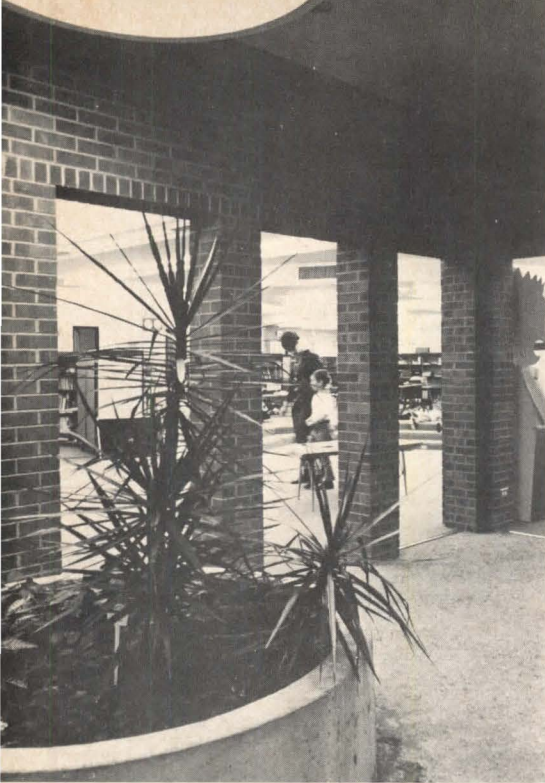
It has been a successful revolution as far as the architect's client has been concerned, as is evidenced by the development of the open-plan concept and the training of teachers to use this new architecturally planned educational tool.



EXTERIOR WALL SECTION



Floor Plan





PROSPECT VALLEY ELEMENTARY SCHOOL, Wheatridge, Colorado. **Architects:** Rogers, Nagel, Langhart, Victor D. Langhart, Partner-in-Charge, Glenn Brangrover, Project Architect. **Site:** Rural area, turning suburban, in rolling hills overlooking the Rocky Mountains. **Program:** Design learning pods without walls for flexible small group and class-size learning spaces containing a variety of instructional media. **Structural System:** Built-up roofing on wood truss joists supported on masonry bearing walls for major structural system; interior steel columns and beams support wood truss joists in interior spaces. **Mechanical System:** Unit ventilators at all exterior walls supplemented by single and multi-zone ventilation units; pendant thermostats used due to lack of interior partitions. **Major Materials:** Brick exterior, interior insulation board covered with vinyl. **Consultants:** Edward R. Bierbach, structural; Earl L. Heckman, mechanical; Behrent Engineering Co. electrical. **Costs:** Budgeted, \$619,500; bid, \$602,591; actual, \$626,047.46; \$15.61 per sq ft with landscaping. **Photography:** Rush J. McCoy.



POST OFFICE STANDARD —WITH VARIATIONS

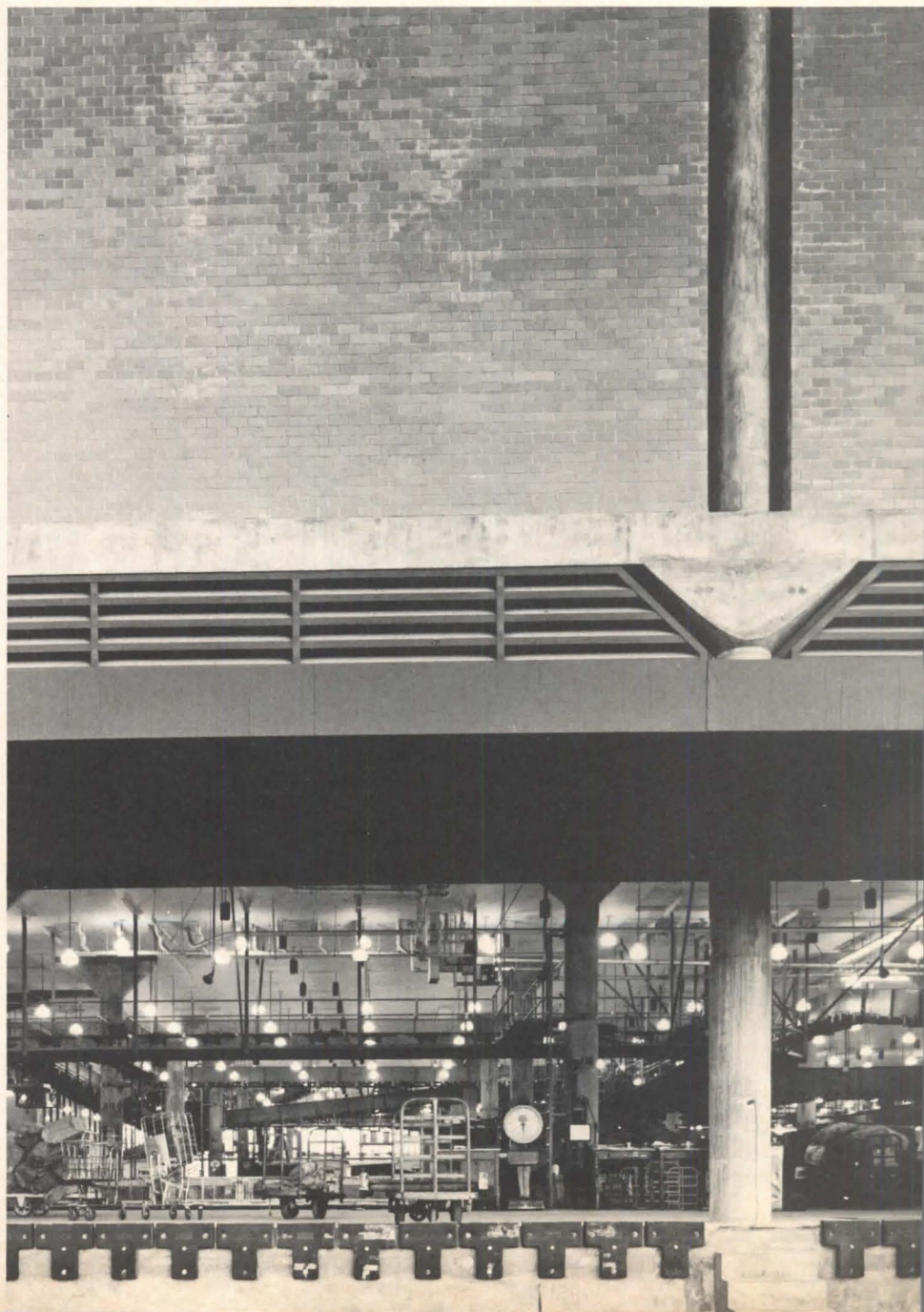
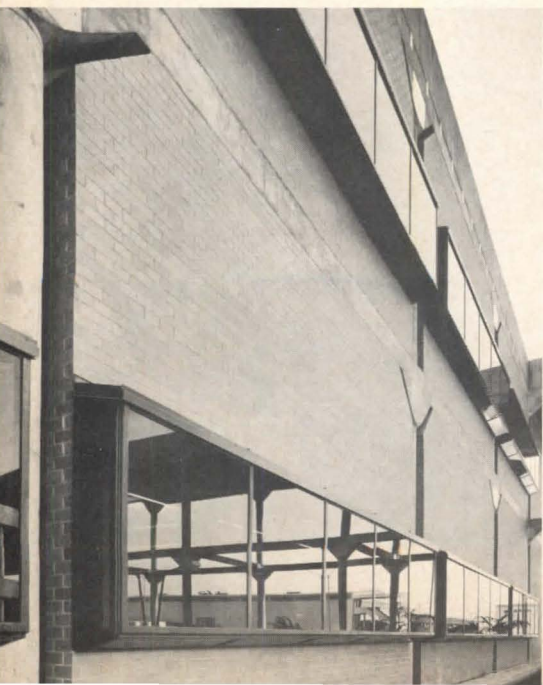
In the OCTOBER 1968 P/A, we showed how DMJM carefully shaped a tunnel entrance to dramatize the swallowing and expulsion of traffic. In the present DMJM work, the Worldway Postal Center, we seem, at first glance, to have an example of the opposite approach, that of Just Letting Things Happen. The raw, stained concrete construction, exposed everywhere, is Post Office standard, and the infilling is a plain brown brick: a combination that seems to promise only a bru-

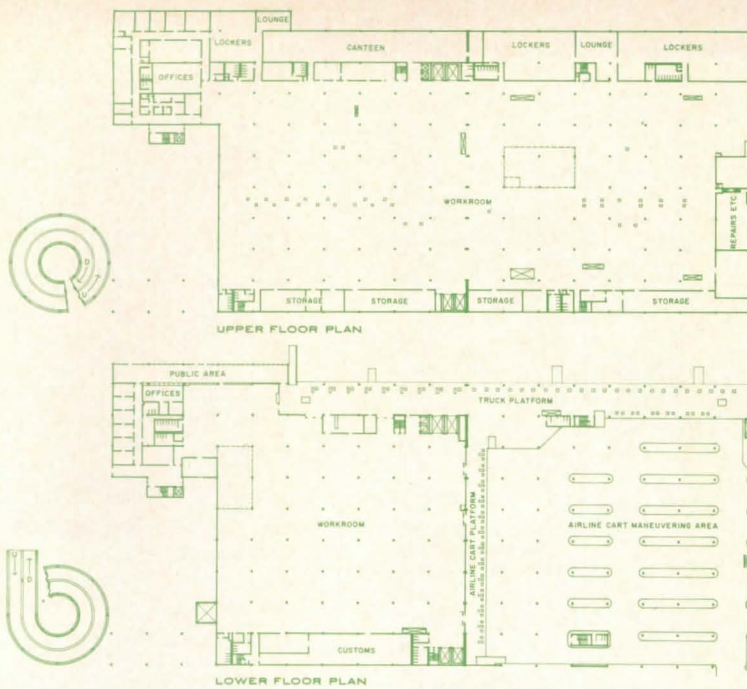
talist quality of industrial drabness.

But there is a little more to it than that. The architects have borrowed a trick from the Romans, from Michelangelo and Borromini. Instead of standing to the rear of the bearing members, as they normally would, the screen walls of brick and grillwork are set forward so that they are flush with the floor slabs and the faces of the capitals, and nearly engulf the columns, upsetting ordinary rules of precedence. Seen on the oblique,

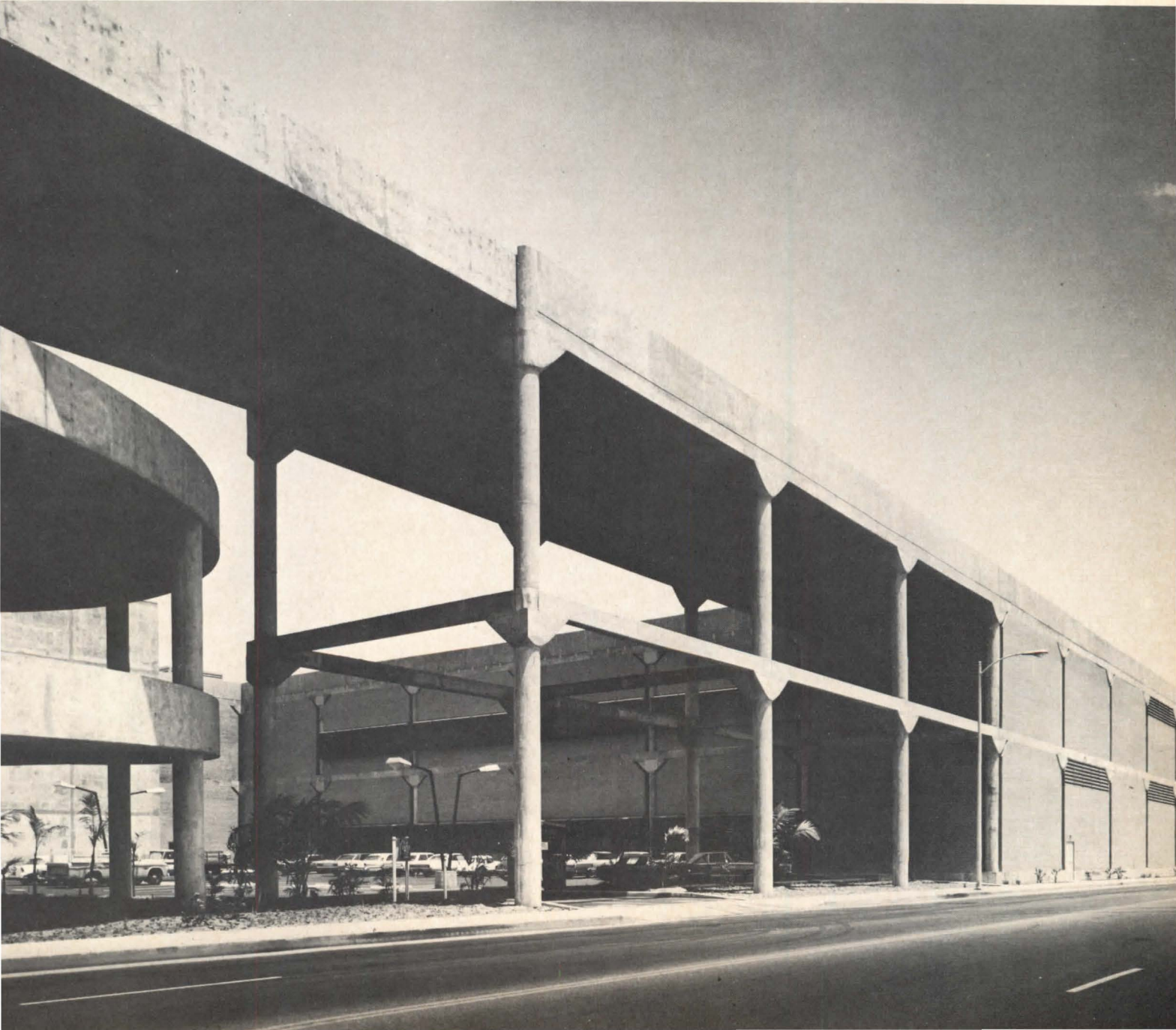
the infilled stretches of the exterior create a volume enigmatically gashed at regular intervals, in which only the corner columns have much individual prominence. The glazed areas, relatively few in number but large, are treated in two ways. The big windows of the public area are treated as infill, and brought out flush with the floor slabs, while the windows of the offices and employee's rooms are brought forward of the wall surface as a series of low, jutting bay windows, related ambiguously to the brickwork above, below, and behind them.

Another unusual feature is the separation of the helical auto ramp from the parking deck by three bays of open construction. The ramp, straightening out at the top, is connected rather awkwardly with the top of this skeletal structure. The arrangement is actually a perfectly rational one; at this end the building will eventually expand, filling in the three bays and other ones behind.





LOS ANGELES WORLDWAY POSTAL CENTER, Los Angeles, California. **Architects:** Daniel, Mann, Johnson & Mendenhall. S. Kenneth Johnson, partner in charge. **Site:** An international airport. **Program:** To provide a building for the handling of mail, freight, and cargo shipped by air in and out of the Los Angeles area. **Structural System:** Reinforced concrete column and flat slab construction. **Cost:** \$6,393,000. **Photography:** Marvin Rand.



PSYCHOLOGICAL INFLUENCES ON ARCHITECTURAL EDUCATION

Suggestions on restructuring architectural curricula to stimulate creative development.

By H. H. Williamson, School of Architecture
Rensselaer Polytechnic Institute

Consider the current contrasting methods of teaching architectural design resource material such as structures, mechanical equipment, materials, acoustics, and so on. Some schools teach this resource material *integrated* with the design labs in such a way that students learn this basic information in direct association with a specific design solution. For example, wood as a material, post and beam as a construction method, and warm air as a heating medium are taught in direct relation to a specific student project, such as a residence design.

Conversely, other schools prefer to teach these resource materials by the *capsule* method. Separate courses, unrelated to a specific architectural design, are used for teaching structures, mechanical equipment, materials, acoustics, and so on, by rote memory.

Neither method has to date been supported by any evidence other than "intuitive" evaluation. In fact, there has not been one single major breakthrough in educational theories or methods supported by objective scientific proof in the hundred years of formal architectural education.

But there does exist a field upon which the architectural educator could draw—the field of the "Psychology of Learning."

A research study is in progress at the Rensselaer Polytechnic Institute Center for Architectural Research with Professor Harry E. Rodman, FAIA, as architec-

tural advisor. This study is concerned with whether or not there is a psychological basis for curriculum organization in architecture. Previous learning experiments by psychologists are being explored and new experiments are being conducted to determine what influence they may have upon the structuring of the architectural curriculum.

In an experiment conducted by the late Dr. Max Wertheimer, Professor of Psychology and Philosophy in the Graduate Faculty of Political and Social Science at the New School for Social Research in New York, two groups of students were taught geometry theorems by different methods: one group was taught the theorems as a means of solving a specific type of problem, while the second group was taught the theorems by rote memory unrelated to specific problems.

Some very interesting results were observed in follow-up tests. The first group was found to be faster than the second group in solving the specific type of problem, but was unable to "transfer" these theorems toward the solution of other problems. The second group was found to be somewhat slower, but successful, in solving the specific type of problem and was quite successful in "transferring" these theorems toward the solutions to various other types of problems.

Can the conclusions from these experiments be carried over into architectural design education? Is it possible that the *integrated* method would really deter the architectural student's creative development?

There is further evidence to support Dr. Wertheimer's experiments. Dr. George Boguslavsky, Professor of Psychology at Rensselaer Polytechnic Institute, is acting as research advisor for the current study. In an article in *Science* magazine, Dr. Boguslavsky states that Pavlov observed in experiments that responses conditioned in one context fail to occur when the context is changed. Accordingly, for the maximum transfer basic to highly creative work, Dr. Boguslavsky suggests that "such confusion may be avoided if the essential characteristic is illustrated in a variety of positions and in many contexts."

Studies in Creativity

Dr. Donald Mackinnon, psychologist and Director of the University of California's Institute of Personality Assessment and Research at Berkeley, has, in recent years, made numerous studies of creativity in architects. In a lecture given at Yale University in 1962 on "The Nature and Nurture of Creative Talent," Dr. Mackinnon recommended emphasis on both rote memory and upon the transfer of learning from one subject to another to strengthen the creative process.

A possible graphic explanation may be as follows. Concepts are learned by the individual and are stored in the human brain. According to Paul Smith's book, *Creativity*, the highly creative brain stores concepts in a free-floating state with the capability of their being freely associated with numerous other concepts previously learned in new and unusual creative combinations (Fig. 1).

On the other hand, concepts learned in direct association with a specific reference tend to be tied permanently to that reference and never end up in a free-floating state unless relearned in a variety of different combinations (Fig. 2).

Based upon existing evidence, we could logically conclude that the *capsule* course method taught either by the rote memory or by stressing a variety of relationships in different contexts is more efficient in developing the creative thought capabilities of a student engaged in creative problem solving than the *integrated* method. Further, unless strong emphasis is placed upon "transfer" in the teaching of resource material under the *integrated* method by the use of metaphors, similes, analogies, and so on, the student will be retarded in the development of his creative thought potential.

Another aspect of the learning process being considered in the same studies at Rensselaer regarding the teaching of design resource material is the *time and place* in the curriculum at which this material is introduced to the student.

Present curricula in most undergraduate schools of architecture concentrate the design resource material in the third and fourth years with a limited amount scheduled in the second and fifth years.

Architectural design, however, usually begins either in the first or the second year. Accordingly, the student's mental design processes are initiated and established prior to their learning the required design resource material that constitutes the vocabulary for design problem solving. In other words, the students learn to ignore many important considerations required in architectural design, thereby developing a negative habit strength. Continued repetition serves to reinforce this response until it becomes an automatic, subconscious reaction. Once these responses become automatic, relearning is most difficult.

Breaking Negative Strengths

In an experiment conducted by psychologist Paul S. Siegel and reported in both the *Journal of Experimental Psychology* and Gregory A. Kimble's book, *Foundations of Conditioning and Learning*, it was concluded that in even a simple trial-and-error situation, the speed of learning "... is some inverse function of the initial level of absolute strength that prevails among competing reaction tendencies." Thus, the stronger the negative habit strength becomes, the more difficult it becomes for the student to learn the correct response.

In his book *Educational Psychology*, psychologist Lee J. Cronbach explains the learning process quite clearly: "Learning is shown by a change in behavior as a result of experience." He goes on to say, "A person learns the misinterpretation that causes him to make a wrong response, but this is also learning and it can be explained by the same laws." But one of the most pertinent points that Dr. Cronbach makes relative to negative habit strength is the following: "There are occasions when the hardest job of the teacher is to break up a response pattern which is already fixed."

Reinforcing Dr. Cronbach's conclusion is a wealth of experimental research reported by psychologists R.W. Schulz, G. Mandler, S.K. Atwater, S.H. Heinemann, and B.J. Underwood.

Therefore, for the greatest possible efficiency in the learning process, it is important that students learn at a particular *time and place* in the curriculum, thereby eliminating the wasteful relearning process. Not only does relearning require valuable additional time, but experiments show that learning speed and effectiveness of students is reduced in relearning similar material.

To carry this conclusion over to a practical application, one would expect to find many mature architects who have yet to overcome this negative habit strength and who still design without due consideration for structure, site topography, mechanical equipment, and similar influences. Hasty evaluation might lead us to conclude that this practice is simply a personality characteristic of the individual. However, such responses are

more likely a result of his educational process.

A logical solution to this problem is to move the design resource material to the first two years of the architectural curriculum and to begin architectural design sometime after the student has acquired the basic vocabulary. This is not to suggest that the student must be able to calculate and size such components as structure, mechanical equipment, plumbing, and so on, but that he has learned a visual-mental concept of the numerous variety of components to be used by him in conceptual design.

Interestingly, virtually all recent efforts by architectural educators to keep pace with the "knowledge explosion" has been toward an increase in curriculum length. Little or no emphasis has been placed upon increasing the efficiency and effectiveness of educational methods.

Also relative to the *time and place* in the architectural curriculum is the teaching of city and regional planning. Most present curricula schedule planning to be taught in the fifth or last year, after individual building design instruction.

Earlier emphasis in architectural education was placed upon the design of individual buildings. Accordingly, curricula were structured to organize student design experience from the simple to the complex. Students begin with building programs of relatively simple requirements and progress to more complex requirements.

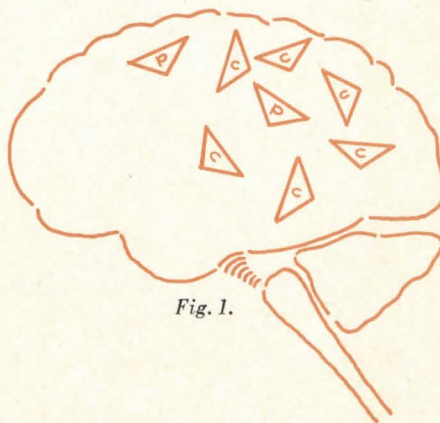


Fig. 1.

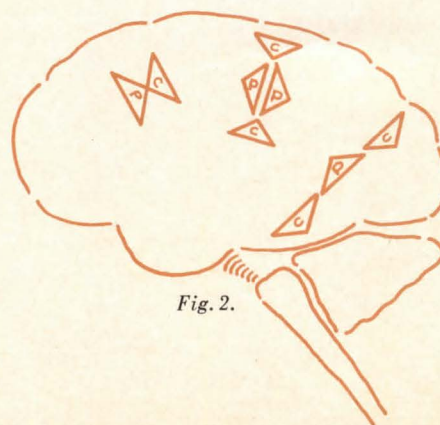


Fig. 2.

In recent months, however, widespread attention has been called to an existing and growing visual state of "environmental ugliness," which is defined as the result of our unplanned and undesigned total environment that includes both man-made structures and the man-machine defacing of the landscape. As a challenge, professional architects have assumed the responsibility for "environmental ugliness." To effectively combat this change in professional emphasis, the architectural curriculum will have to change.

Move from Large to Small

To formulate a positive habit strength that will train students to think of the large environmental scale initially, gradually reducing scale considerations to the individual building, the teaching of regional and urban planning should be moved to the beginning of the curriculum. Thus, individual building design would follow environmental planning in the *time* sequence of student experiences. Preliminary to planning itself should be the introduction of planning concepts basic to the planning process. Planning concepts should include such information as human needs, economics, social, legal, and governmental organizations, plant materials, and so on.

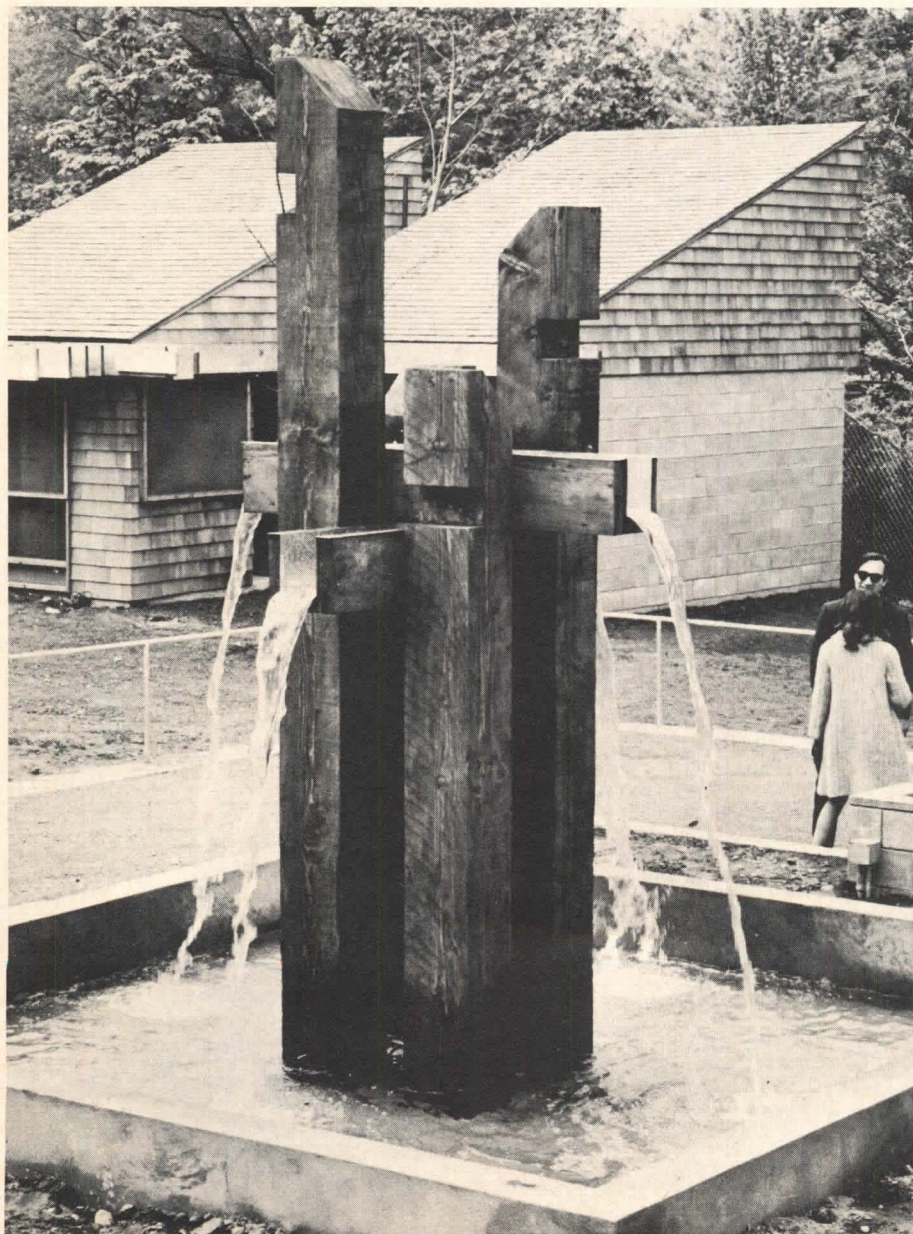
Another concern in curriculum planning is spatial visualization. Experiments by psychologists on spatial visualization have to date been quite limited. An experiment conducted in Russia in 1965 by B.M. Rebus, with the results published in *Voprosy Psikhologii*, concluded that "... spatial visualization is an unlearned ability."

Contrary to this conclusion, however, was an experiment in 1955 conducted by M.F. Blade and W.S. Watson, with the results published in *Psychological Monograph*. The outcome of this experiment indicated that spatial visualization can be learned.

The investigation of spatial visualization is another phase of research being conducted at the Rensselaer Center for Architectural Research. The determination of whether spatial visualization is a learned or an unlearned ability could have a revolutionary effect upon structuring the architectural curriculum.

Whatever the discoveries in these investigations, it seems apparent that the process of learning design and planning should move from basic "tools" to the imaginative use of those tools, and from the over-all concept of community down to the building increments that combine to produce the individual community's physical form. Thus, students will be able to perceive the *connectiveness* of their creative problem-solving devices with the various applications of those ideas and techniques, and they will be able to envision the significance of their efforts in the framework of the community at large.

VACATION CAMP FOR THE BLIND



For 17 of its 42 years, the Vacation Camp for the Blind has been situated in 40 acres of woods, fields, and meadows near Spring Valley, New York. The nonsectarian, interracial camp provides summer vacations and winter weekend holidays for more than 2000 blind people, who can pay what they wish, or not pay at all, according to their abilities. In addition to housing, the camp offers social services, professional counseling, and community and recreational programs.

Until recently, blind people with sighted children were placed in rather run-down cabins mingled with the housing for single people and childless couples. Now, thanks to a design by Samton Associates of New York City, they have their own compound of 12 cottages and a lodge connected to the main camp by walkways and railings.

The cottages, most of which adjoin each other to allow them to be combined for larger families, consist of two bedrooms on either side of an entry-bath element. A screened porch in front of the entry provides space for relaxing. Since the partially sighted also use the facilities, varying hues of vinyl tile on the floors indicate pathways to the rooms and bath, and brightly colored formica covers the drawers of built-in storage chests. The upper half of each bedroom is wood-paneled and the lower finished cinder block, with a portion left with a rough-textured surface to act as guide. Lighting fixtures especially designed for the cabins are faceted to permit different angles to obviate harsh shadows and contrasts. Safety handrails are provided at the sides of tubs and toilets in the bathrooms.

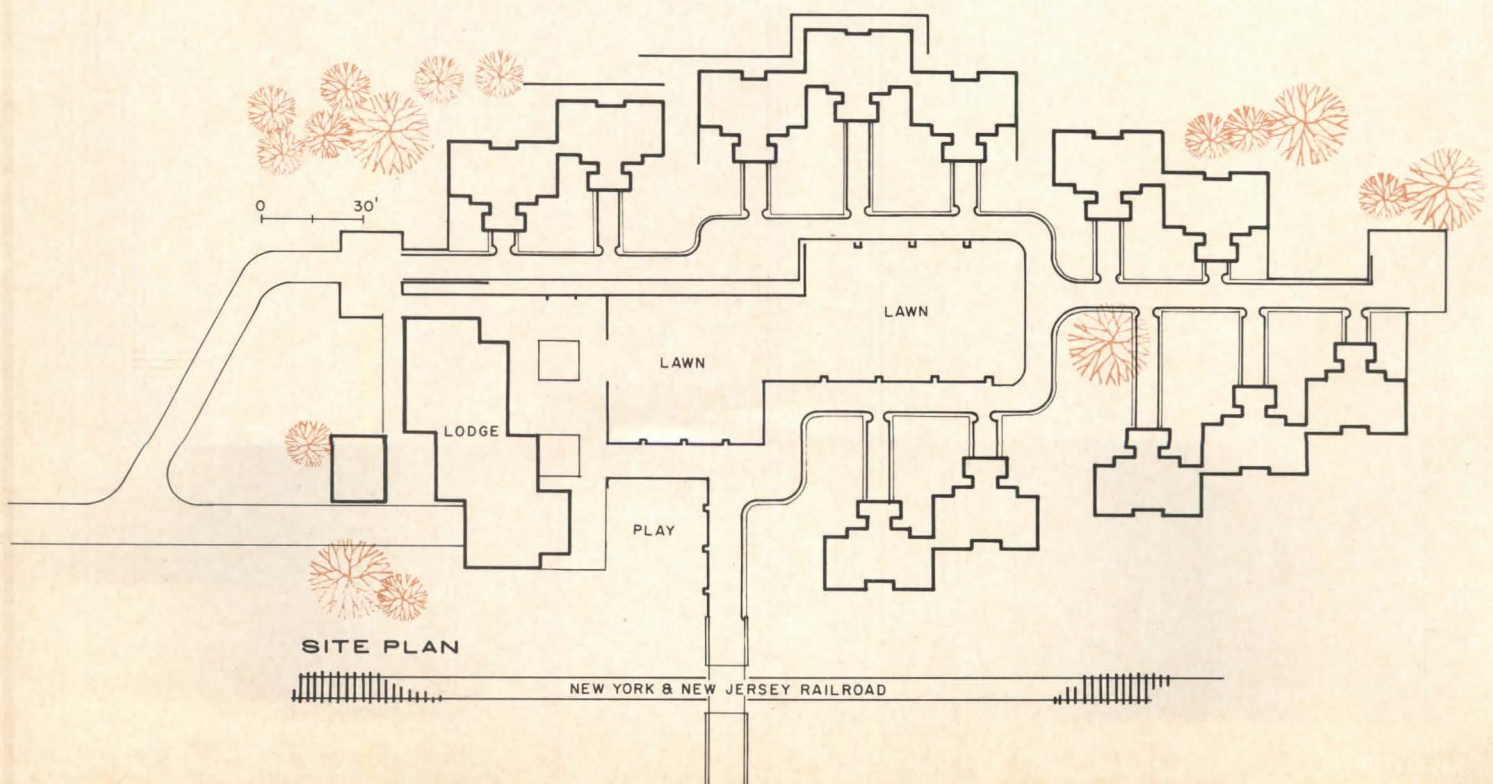
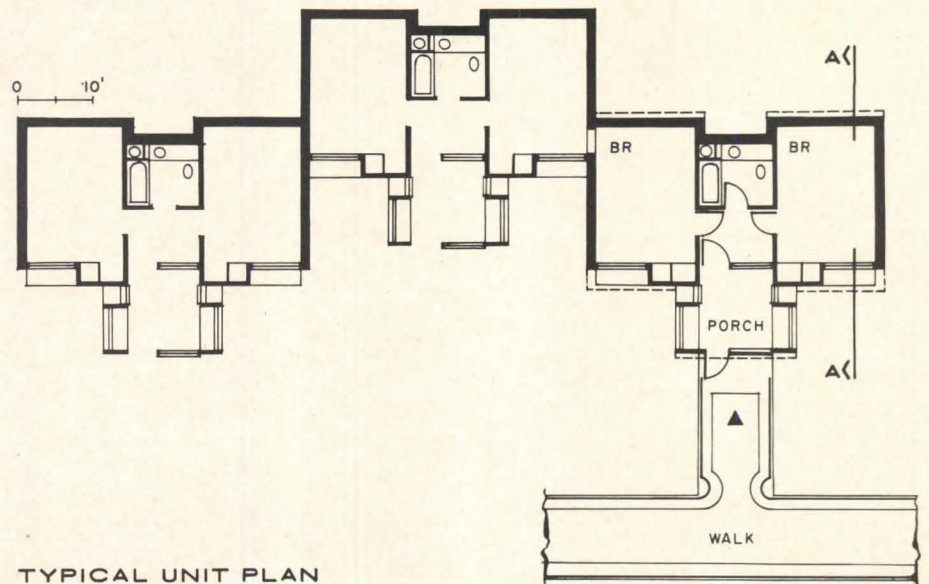
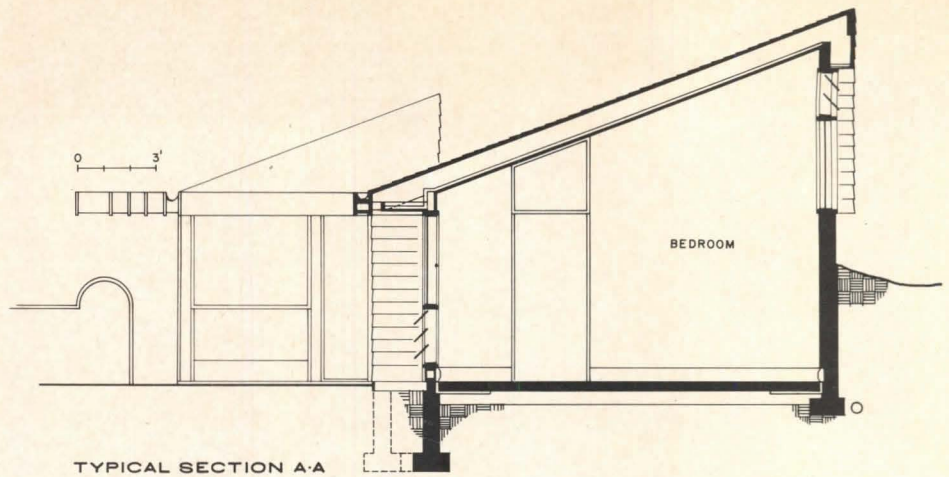
The lodge, which is situated to the left of the entrance into the compound, includes an adult lounge, a kitchen, and a play school-nursery outside of which is a small playground or tot lot. The parquet-floored adult lounge has overhead glass doors, which slide down in the winter to close off the screened porch, but admit maximum natural light. The playroom has a similar provision, and is also divisible into two spaces through use of a centrally-located manifold door. The kitchen, in addition to providing preparation space for children's bottles and snacks and for camp parties, is also designed for orientation programs to acquaint blind parents with effective kitchen techniques and available aids and appliances that will reduce accidents in home kitchens. There is a utility building behind the lodge containing a storage room and a laundry room for the campers' use.

A major effort of the designers in creating a vacation environment for people who are blind was the emphasis on providing stimuli for the other senses. Sounds emanate from a sculpture fountain near the lodge, and from hanging "sound sculptures" at various points along the walkways consisting of tinkling seashells, clattering bamboo sticks, and clanging metal rods. When it



rains, water drops from especially designed gutters into shallow pools around the cabins. Pungent natural odors have been designed into the landscape by Samton and the landscape architect, M. Paul Friedberg. Campers can move from zone to zone of fern, sumac, mint, and the headier fragrance of real pine forest. The sense of touch is emphasized for its pleasurable qualities as well as its functional duties of guidance. The smooth steel pipe railings have sensuous curves to indicate approaching corners or entrances. Underfoot surfaces differ to indicate where the camper is and where he is going: fixed gravel for walkways, concrete for the central terrace, a mat to indicate the approach to a glass door in the lodge.

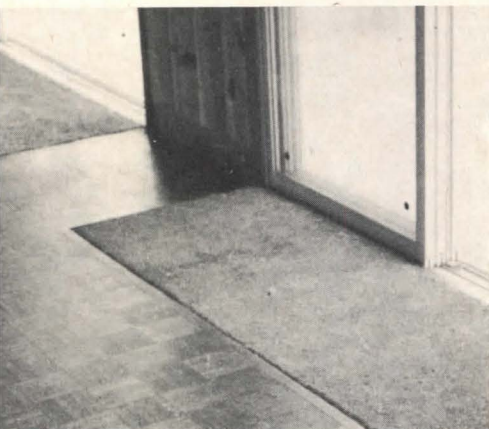
The generous use of color in an environment where many people will not see it prompted a question. "The blind are as interested in colors as anybody is, even more because they can't see them," said Harry Minkoff, executive director of the camp. "They know they exist and they want to know where they are. The blind are as much moved by the idea of variety as the sighted are." Architect Claude Samton added that "Architecture can work for the blind as it does for the seeing. And while you should emphasize nonvisual experiences, you should not eliminate the visual ones. We should work to give the blind the best we can of both worlds."



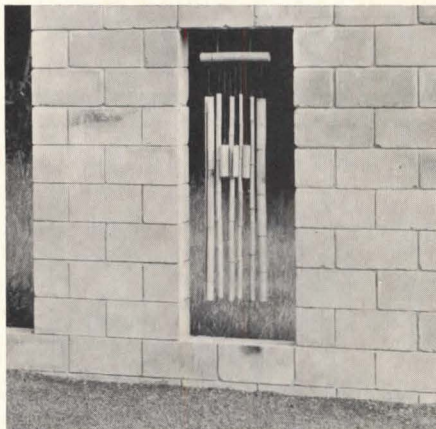
SYLVESTER FAMILY UNIT, VACATION CAMP FOR THE BLIND, Spring Valley, N.J. **Architects:** Samton Associates. **Site:** Hilly, well forested area selected with help of architect. **Program:** Provision of living units and a social center for blind couples with, usually, sighted children in a camp-recreation area for blind people. **Structural System:** Concrete block bearing walls with wood joist roofs. **Mechanical Systems:** Baseboard heating for bedrooms; thermostatically controlled units for bathrooms and foyers in cabins. Overhead heating for lodge. **Major materials:** Cedar boards, smooth textured concrete block, vinyl tile, brightly colored formica panels. **Cost:** \$300,000. **Consultants:** M. Paul Friedberg & Associates, landscape architects; Robert Silman, structural; Paolo Squasi, mechanical; Newhill Construction Co., general contractor. **Photography:** Courtesy, Samton Associates.



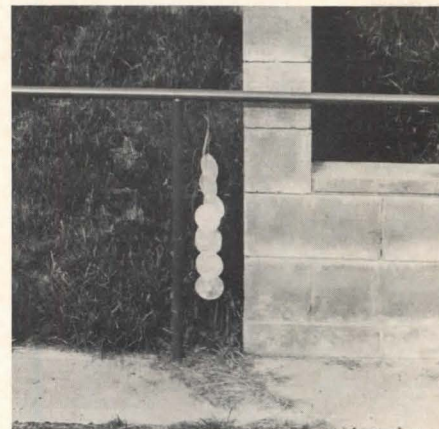
Curved steel pipe guide rail.



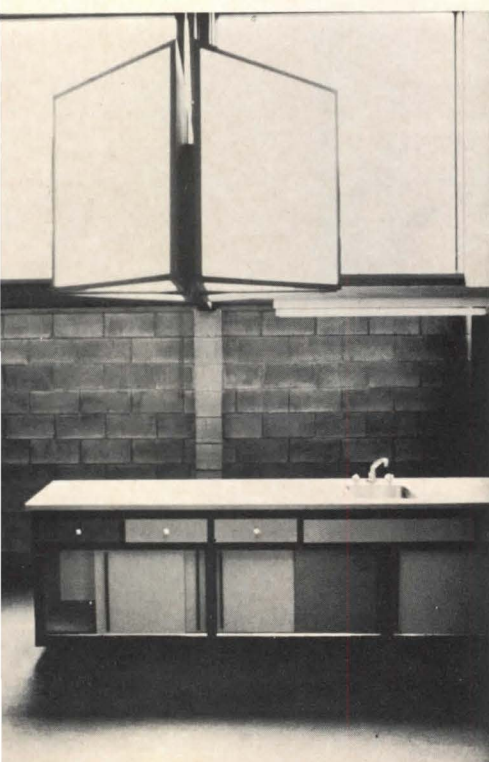
Mat announces glass door.



Kids at play.



"Sound sculptures," bamboo and shell.



Faceted diffusing fixture.



HARDCOAT ALUMINUM FINISHES

BY HAROLD J. ROSEN

Knowing how hardcoat anodized aluminum is produced can help readers better specify the material. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

Hardcoat aluminum finishes comprise those aluminum finishes designated as A42 by the Aluminum Association and sold commercially under the trade names of "Duranodic" by Alcoa and "KalcOLOR" by Kaiser Aluminum. Hardcoat anodized colors are limited to the light, medium and dark bronzes; the light, medium and dark grays; and black.

The hardcoat colored finishes offer many advantages over the natural finishes and the dye impregnated colors. They offer superior light fastness, greater durability, and higher resistance to corrosion and abrasion. The superiority of the hardcoat

finishes over the older anodizing processes is due to the higher density of the oxide film obtained.

In the older, or conventional, sulfuric acid anodizing process, the electrolyte has a moderately solvent effect upon the anodic coating as it is being formed. This tends to keep the outer surface of the coating porous. But the hard coat anodizing process is considerably faster, which leaves less time available for the solvent action. Consequently, the coatings formed are more dense and provide surfaces that are more resistant to abrasion.

After being subjected to field tests and accelerated artificial laboratory tests, hard coat finishes demonstrate a longer life-span than natural finishes. Resistance to abrasion of the hard coat finishes is twice that of conventional finishes and has been demonstrated by Taber abrasive tests and jet abrader methods. Because of this hardness, these finishes can be used at entrances, handrails, pushes and pull bars.

The hard coat finishes are dependent upon three basic ingredients. First, the selection of a controlled aluminum alloy; second, the specially patented acid electrolyte; and third, the anodizing time. This results in an integrally colored coating having a range in thickness from 0.7 to 1.2 mils.

However, because of the nature of the finishing process, which includes the pretreatment as well as the anodizing process, minor shade variations can occur from one colored element to another. To minimize color variation, it is necessary to understand the factors that contribute to the variation so that specifications can be written to control and reduce the difference in color.

Pretreatment consists of both mechanical and chemical finishes that precede the anodic process. In the mechanical

treatment, the aluminum surface can be either polished or buffed to obtain a texture that provides a certain uniformity. This can result in a pattern of fine, parallel scratch lines produced in varying degrees of fineness by abrasive-coated belts or by stainless-steel wire brushes. Buffing results in a mirror-like finish with the elimination of surface marking. Because a buffed surface is highly reflective, the apparent color of the finished member appears darker than the actual color of the oxide coating.

In the chemical treatment, the aluminum is subjected to an alkaline or an acid etch. The alkali etch results in a matte finish. The acid etch results in a bright finish. These chemical pretreatments have an effect on the anodic finish. Matte finishes will result in a lighter apparent color, and bright finishes will result in a darker apparent color. These apparent color variations result from the reflectivity of the metal substrate as well as from the anodic coating.

Only controlled alloys should be specified for hardcoat finishes. Ordinary aluminum alloys can vary in the composition of the alloying metals, which can include silicon, iron, magnesium, manganese, chromium, copper, and zinc in varying percentages. Each of these metals can affect the color of the final anodic coating. By specifying controlled aluminum alloys, color variation is reduced.

As an additional control, the architect should obtain representative samples from a major aluminum producer before asking for bids. He should make his selection at that time so that these samples can be used as a control against samples to be submitted by the contractor after the contract is awarded. Two samples should be selected initially to establish the light and dark range of colors that will be permitted on the project. Although the dark and light

range may be too strikingly different when placed adjacent to one another, the architect may specify that adjacent members should not vary from one another by more than a certain amount. This color variation can be controlled by means of a color analyzer, known as a Photovolt Reflection Meter, made by the Photovolt Corporation of New York. This device uses three different filters — a green, a blue, and an amber — and a lengthy mathematical calculation for obtaining a quantitative value.

However, the device can be simplified to use only the green filter with a direct reading which will indicate the difference between the light and the dark samples used for control and the sample in question. By establishing these values, the architect can specify that adjacent members should not vary by more than one, two, or three points when subjected to the Photovolt Reflection Meter. The device need only be used when there is a difference of opinion between the architect and the contractor about the degree of difference in color between adjacent members.



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Notre Dame's Athletic and Convocation Center

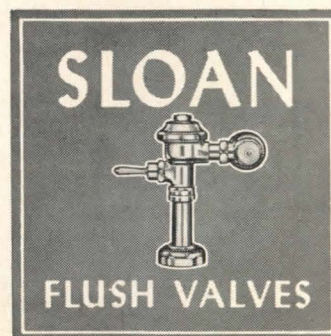
*Twin-domed complex
houses sports, trade shows,
conventions,
simultaneously,
—rain or shine*

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OBLIGATIONS OF LIABILITY INSURER

BY BERNARD TOMSON
AND NORMAN COPLAN

P/A's legal team discusses a case in which an insurance company had to defend its client in a liability suit even though the liability fell outside the terms of the policy.

Insurance plays a significant role in the construction industry. Although the type and nature of liability insurance that may be carried by a contractor, subcontractor, architect, engineer, or owner may differ, it is vital to each that the risks covered are sufficient in scope to provide adequate protection. There must also be satisfactory coverage in respect to the obligation of the insurance carrier to defend claims of liability that are asserted. However, the obligation under a particular liability policy to pay, if the risk involved is covered by the policy, and the obligation to defend a claim asserting liability are not necessarily co-extensive. The insurer may be obligated to defend, and bear the cost thereof, even though the ultimate liability established does not fall within the coverage of the policy.

The foregoing principle is illustrated in the case of *DiMaria Construction Company, Inc. v. Travelers Insurance Co.*, (N.Y.L.J., December 1968). In this case, a general contractor instituted suit against his insurer to recover legal expenses the contractor had incurred in defending an action for personal injury that had been instituted against him. The general contractor had entered into a contract providing for certain work in connection with alterations to a department store. This work included general repairs to and about the premises, including the sidewalk. A pedestrian walking on the sidewalk adjacent to the street was injured and brought action against the owner, the general contractor, and the city. The contractor's general liability policy provided that the insurance carrier would, with respect to such insurance as was afforded by the policy for bodily injury liability, "defend any suit against the insured alleging such injury . . . and seeking damages on account thereof, even if such suit is groundless, false or fraudulent." Both the city and the owner claimed over against the general contractor, contending that if they were deemed liable in the suit, they should be indemnified by the contractor.

The contractor forwarded to his insurance carrier the complaint and cross-complaints charging him with liability, but the carrier refused to defend on the ground that the accident occurred after the project had been completed and that the contractor's insurance did not cover "completed operations." The contractor was compelled, therefore, to defend the action at his own expense, which action was eventually dismissed. The contractor then sued his insurance carrier to recover the costs of such defense. The primary issue for determination, therefore, was whether the insurance carrier, under the

provisions of the policy in effect, was obligated to defend the action instituted against the contractor, even though the accident occurred after the project and the contractor's services had been completed, and even though there was no coverage under the policy for liability incurred for an injury sustained at such time.

The Court first pointed out the fundamental principle that the obligation of an insurance carrier to defend is broader than its obligation to pay, and that its obligation is to be determined by the allegations asserted against the insured and not by what is eventually proved. The Court said:

"The carrier's duty to defend is broader than its obligation to pay. Where an action is brought against an insured, even if false or without basis, if by the allegations of the complaint in the action brought by the injured party they fall within the coverage of the policy, the carrier is obligated to defend."

The allegations of the complaint against the contractor by the pedestrian who had been injured stated that "at and during all of the times" mentioned in the complaint, the general contractor undertook and did perform services in connection with the repair of the sidewalk, and at such time the contractor "created a dangerous condition." The only specific time mentioned in the complaint was the date of the accident. The cross-complaints of the owner and of the city stated that "at the time" mentioned therein the contractor was engaged in repair work and was in control of the work being performed to the sidewalk. Again, in these cross-complaints, the only specific time mentioned was the date of the accident. The Court therefore concluded that the allegations of the complaint and cross-complaints were to the effect that at the time of the accident the contractor was actually engaged in and perform-

ing repair work, and thus the insurance carrier was obliged to defend. The Court stated:

"Where liability is asserted against an assured on some grounds, which, if established, would fall within and some which would fall without the exclusionary clause in a policy, the carrier is obligated to defend the action. . . .

"With these precepts in mind, an analysis of the allegations of the complaint and cross-complaints discloses a charge by the injured party that at and during all the times 'hereinafter mentioned' defendant undertook to and did perform services and in connection therewith created a dangerous condition and that she sustained injuries on June 13, 1961, which, as heretofore noted, is the only time 'hereinafter mentioned' in the complaint and cross-complaints. Since it was alleged that the injured party sustained those injuries 'at' and 'during' the time that DiMaria Construction Company, Inc., was performing its work, defendant carrier was obligated to defend since the complaints did not refer exclusively to a 'completed operation'; while if it were factually established at the trial that the operations were actually completed at the time of the accident defendant might not have been required to pay any recovery by the injured party."

The Court concluded that the question of whether the insurance company would have been under a duty to pay had the pedestrian prevailed in the negligence suit need not concern it, since, regardless of that duty, the company had obligated itself to defend if a suit were brought against its insured alleging facts that fell within the terms of the policy coverage.



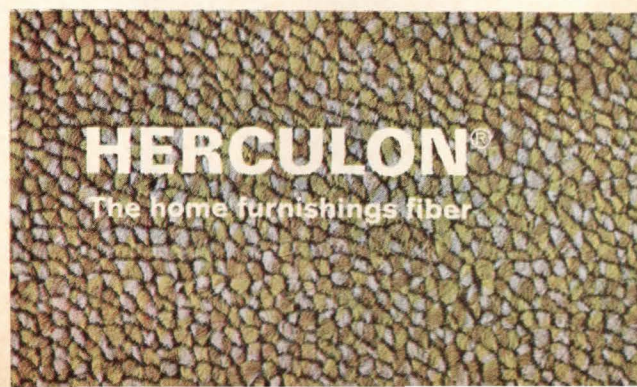
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CAPRICIOUS MINGLING OF ARCHETYPES

BY ERVIN GALANTAY

MATRIX OF MAN. By Sybil Moholy-Nagy. Frederick A. Praeger, 111 Park Ave. So., New York, N.Y. 320 pages, 343 illustrations. \$15.00. The reviewer teaches urban design at Columbia University and practices architecture with the New York firm of Damaz, Pokorny, Weigl.

The recent upsurge of popular interest in cities has brought forth a flood of new publications characterized by a turned-on, journalistic style, lavish illustrations, and steep prices. Alas, the pace at which these books are written forces some authors to telescope their research and to cannibalize similar publications for ideas and handy graphic material.

Leafing through *Matrix of Man*, a new \$15 volume on the history of urban environment, one finds that it contains nary a new diagram or a photograph that has not been scissored from familiar sources. It is the text that promises originality and one turns to it with pleasurable excitement, since the author is Sibyl Moholy-Nagy, the redoubtable educator and Grand Lady of architectural polemicism.

Not to disappoint the reader, the author opens up with a resounding broadside at the "urban specialists," a new species that maintains a "perpetual momentum of urban crisis." This "species" is in legitimate search for a methodology to deal with problems of the city caused by quantitative changes such as dimensional enlargement and rapid urbanization. But the author quickly unmasks the "spurious scientific façade" of such quantitative concerns and summarily dismisses the "wailing brotherhood" of social scientists and planners. Over-all planning is equated with an ultimately computer-controlled environment that spells Fascism.

The author's own approach is qualitative ("figures, being necessarily unreliable need not concern us") and purports to reassert the historical city sense of a "permanent place on earth flung at the future." She finds the symbols of her preoccupation in the solid-concrete pinnacles outside Mexico's Ciudad Satellite.

"From their apex, we are told, reaches a trajectory curve to the origins of urban environment." The "origins" are important to the author's thesis that in community design the best solutions were found at the very beginning, later attempts being impaired by compromise.

Like Edmund Bacon in *Design of Cities*, Mrs. Moholy-Nagy emphasizes that "man-made environment is the product of architecture." But, in contrast to Bacon, who views urban form as the cumulative product of individual acts of will and imagination, Mrs. Moholy-Nagy's point is that "*plus ça change plus c'est la même chose*."

Bacon's concept is evolutionary, whereas Mrs. Moholy-Nagy rejects the banality of progress. City and village differ like man and ape, but "there is no progress in man's

urban dream except in mechanical equipment." Cities may vary in size and complexity, but the history of urban environment is essentially a sequence of "*déjà vu*." The "Eternal Return" is invoked, momentarily suggesting that the author subscribes to the cyclic theory of cultural history. But Spengler's and Toynbee's concept allows for a highly individual profile of each civilization, whereas *Matrix of Man* asserts that, irrespective of space, time, and culture, human society's attempts at form-giving order are limited to just five basic settlement-patterns or "archetypes." Assuming that the author uses the term in the sense of Jungian archetypes—patterns proper to the collective subconscious of mankind—it should follow logically that such archetypes as the grid-pattern are spontaneously reinvented by distant civilizations. However, the author also champions a "diffusionist" theory by stating that Far Eastern planning practices derive from "Assyro-Hellenistic" models, and, in turn, the design vocabulary of pre-Hispanic America derives from the Far East.

In proof of all this, the reader is referred to "obvious conceptual affinities." The five archetypes of Mrs. Moholy-Nagy are not functional but formalistic and merely define the street and block patterns. Lacking is a comprehension of the city as a system containing sets of interrelated activities, although the nature of this relation is a major determinant of urban form. It is hinted that the espousal of an archetype by society is expressive of its social organization: "concentric" schemes are favoured by absolutism, "modular" plans are fascistic, but their "linear-orthogonal" variety is an expression of the values of the tolerant middle classes (although the bloodthirsty Assyrian imperialists are credited

with its invention). "Clusters" are discriminatory by nature, in contrast to "geomorphic" patterns, which are inherently democratic, and hence urgently desirable. Since the "archetypes" provide the conceptual framework in which the books' 300 illustrations are hung, a summary of the five categories is in order:

1. "Geomorphic" plans are adapted to topography and climate; the term is mostly used for settlements on hilltops or on strong slopes.

2. "Concentric" plans are characterized by a single, dominating core. Medieval hill-towns share the "concentric" tag with ideal cities and new capitals.

3. "Orthogonal-modular" plans are evil, since they are marked by the "roman plague" of the mathematical plat. Checkerboard and grid plans, camps and colonial cities belong here.

4. "Orthogonal linear" plans are proper to merchant cities located along some waterway. Such cities are "shaped in the likeness of the middle stratum of society" even if they look like a grid with mathematical plans like Manhattan.

5. "Clusters" are all other settlement forms that do not fit in the above categories. A social stigma attaches to them. This group includes exurban satellites; urban housing projects; institutional monasteries; company housing; medieval ghettos; and Lincoln Center.

The trouble with this terminology is that it does not conform to accepted usage and that there are few cities that could not be classified with equal justification in two if not three of the above categories. The author adds to the confusion by capriciously mingling her "archetypes." One can play an amusing game trying to match cities with Mrs. Moholy-Nagy's categories. Let's see. Corbusier's Ville Radieuse:

Continued on page 166

A door isn't just something to open

by C. Terence Coveny

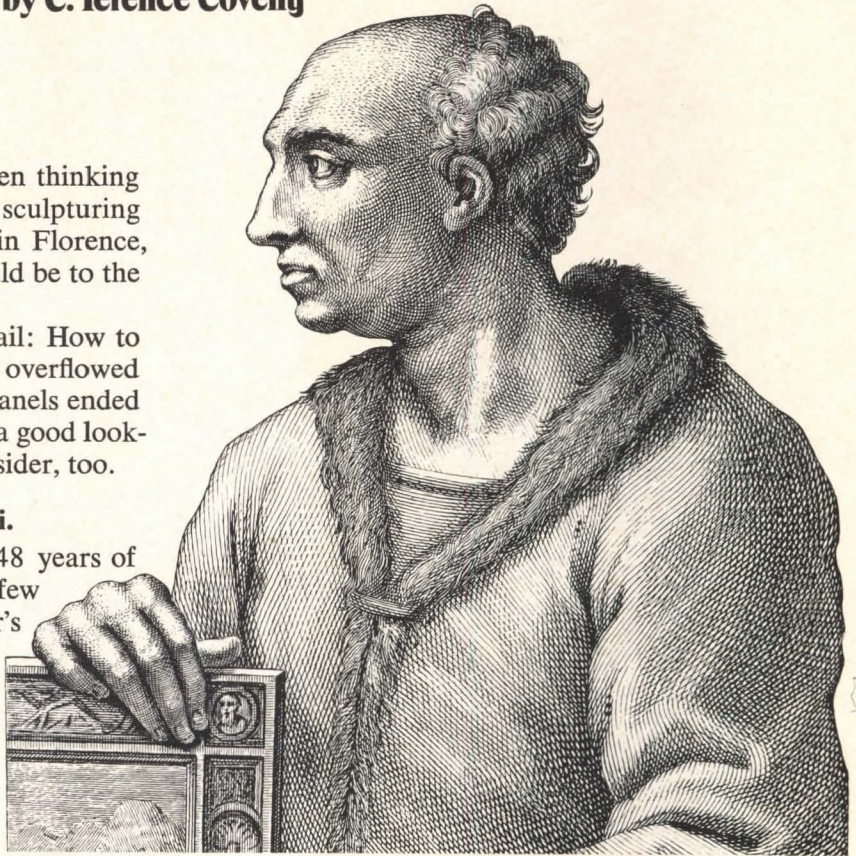
Lorenzo Ghiberti must certainly have been thinking along these lines as he spent 48 years sculpturing Biblical scenes on the Baptistry doors in Florence, Italy. He knew how important a door could be to the looks of a building.

But Ghiberti forgot just one small detail: How to make it floodproof. When the Arno River overflowed its banks two years ago, Ghiberti's door panels ended up all over the city. Sure it's great to have a good looking door, but there are other things to consider, too.

How to be a modern day Ghiberti.

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Is that really a door you're filling that hole in the wall with?

According to Webster a door is a barrier. Actually, that isn't always true. Noise gets through them, as do fires, X-rays, things that cause heavy sudden impacts ...even the Arno River. That's why it's wise not to accept any door on its face value.

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Get together with a Weldwood man. He'll show you why a Weldwood door isn't just something to open. Nor is it just a pretty face. Most important of all, it's also the stuff it's made of.

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Novodor.® Recommended interior door. Stable, flat Novoply® core, faced with hardwood and finished with either Permagard® or Permacolor,® provides a strong, handsome interior door.

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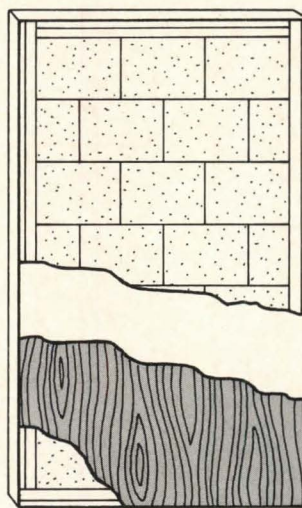
SPECIAL PURPOSE DOOR CONSTRUCTIONS

Static-Shielding. The 9-ply construction, with either staved lumber, Novoply or Weldrok core, incorporates a copper screen which transfers static electricity to hinges and frames.

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Static-Shield Doors



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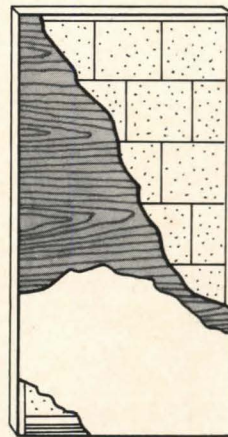
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Even over swimming pools. No sag. No warp. No expansion or contraction. As long as the building stands. And we guarantee that in writing.

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Celotex Glazed Ceramic Acoustical Ceiling Panels are manufactured under U.S. Letters Pat. Nos. 3, 132, 956 and 3, 274, 310 and foreign patents.



GUARANTEE: The Glazed Ceramic acoustical products manufactured by The Celotex Corporation, when installed by an authorized Celotex acoustical contractor in accordance with Celotex specifications in the hereinafter described building, are guaranteed for the life of the building against sagging, warping, expansion or contraction.

Should the Glazed Ceramic acoustical products not perform as guaranteed herein, The Celotex Corporation will supply, free of charge, new Ceramic products to replace any that, upon our examination, are found to have proven defective, providing notice of the defect is sent in writing to The Celotex Corporation, 1500 North Dale Mabry Highway, Tampa, Florida 33607, within 60 days of the occurrence of such defect.

The above constitutes the entire guarantee by The Celotex Corporation. This guarantee is independent of any other guarantee or warranty made by the installing acoustical contractor or others and therefore applies only to supplying new products to replace any defective Glazed Ceramic products. The Celotex Corporation is under no obligation and assumes no liability with respect to labor charges incurred in connection with replacement.

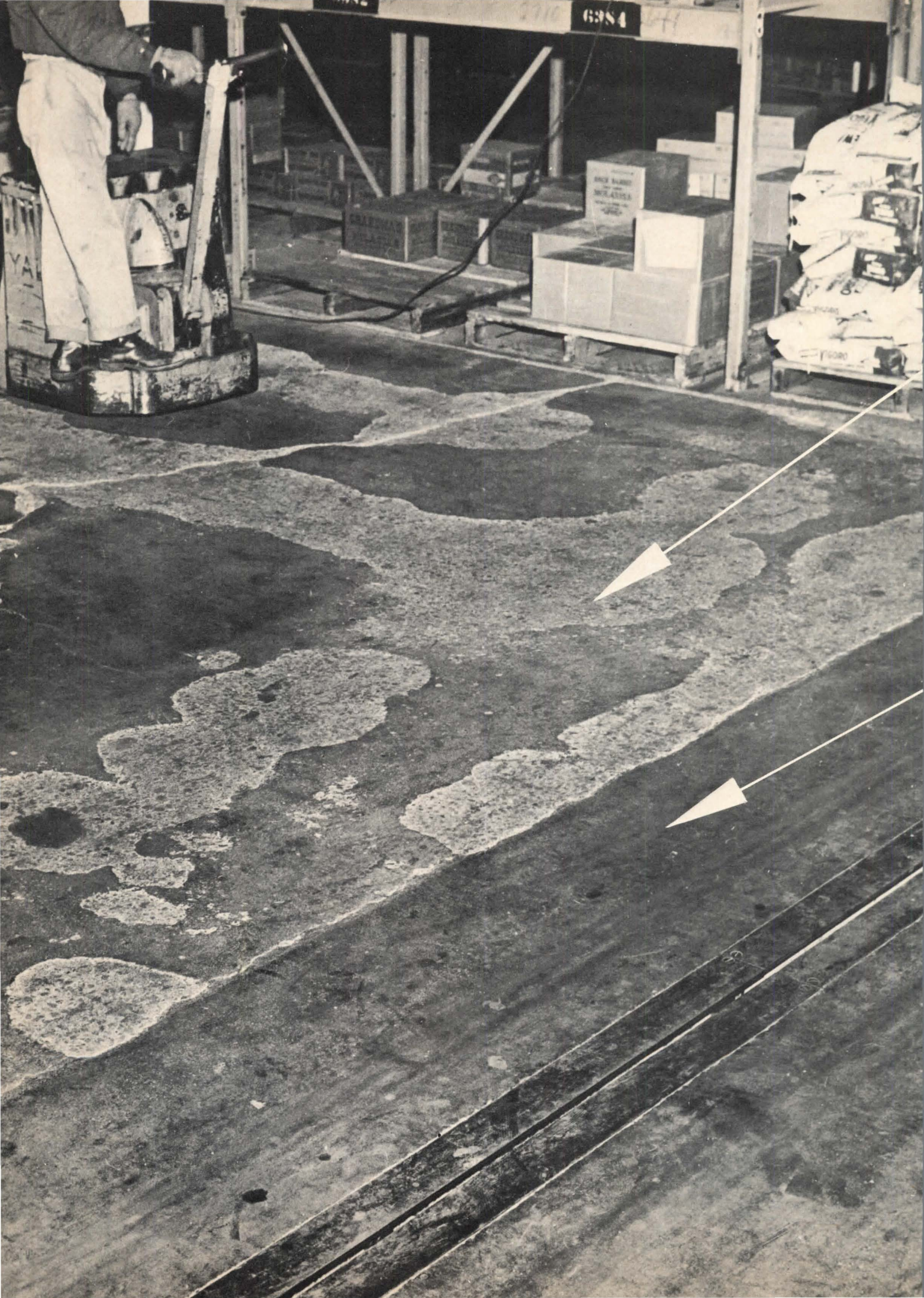


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The rest of the "or equal" floor also dusted and ravelled but at a slower rate since the traffic was less concentrated. However, in just three years, the owner decided he could no longer tolerate the condition you see in the photo (upper left). He has ordered the floor resurfaced and the contract contains a flat MASTERPLATE spec.

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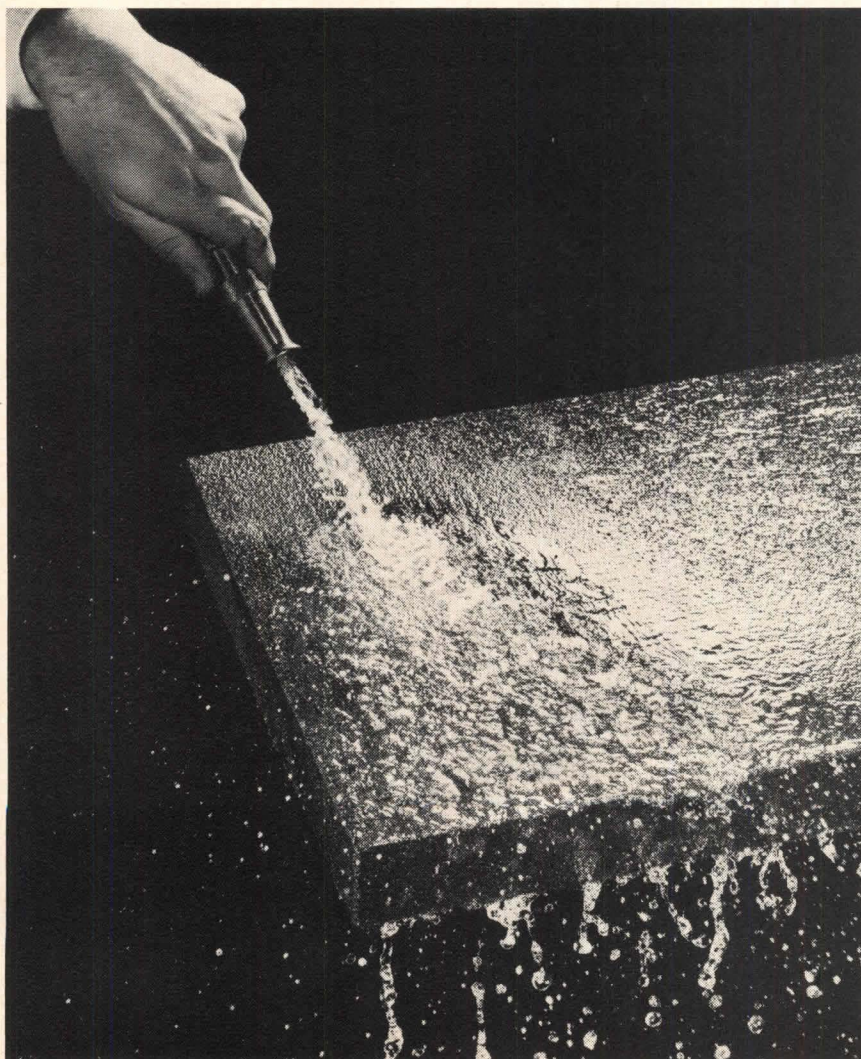
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The Insulation People



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Continued from page 158

modular?; no, "concentric." Edinburgh's Old Town, narrowly stretching from castle to cathedral, linear? No, "concentric." Amsterdam, concentric? Wrong again, it is "linear-orthogonal." Bremen? You guessed it: it's "an Assyrian waterway metropolis."

Adding to the confusion about the archetypes is the whimsical organization of the material in the book's seven chapters.

Chapter 1, on "Geomorphic and Concentric Environments," includes discussion of Persepolis, Delphi, Peking, and Maya Tikal.

Chapter 4, on "The Orbit of Rome," takes up the earlier Greek new towns and, by stretching diffusionist imagination, also embraces Chinese and Inca planning. A lengthy narrative on Sumerian cities triggers a salvo against the "maniacs of urban renewal" in 1960 Philadelphia who "reduced a few architectural gems to vulgar gold teeth in a poorly recapped mouth." The book abounds in quick generalizations, such as, "Marxism and urban society are incompatible." To say that "neither Spain nor Portugal sent out humanists with the conquistadors" is, of course, untrue, and insults the memory of such great men as Alessandro, Geraldini, first bishop of Santo Domingo (1520), or Vasco de Quiroga, who arrived in Mexico with a copy of More's *Utopia* and built socialist communes in 1530.

Petty errors also pop up with some frequency: Soria y Mata's name is consistently misspelled, and, according to George Collins, the photo used to demonstrate the "banality" of his Ciudad Lineal does not even depict its subject. Dimensions as stated are often incorrect. Thus, Persepolis sports a "2 feet wide double run staircase," while medieval Bern is adorned with fountains "every 4000 feet" although the length of the original Zähringian town does not exceed half that distance (2000 ft).

The author treats historical persons, alive or dead, with refreshing levity. Louis XV of France is characterized as that "poor fellow"; Patrick Abercrombie, "knighted for his efforts . . . wove the cutest daisy patterns from pure cluster philosophy." Patrick Geddes, Henry Wright, Lewis Mumford all take a slap on the hand for their "unbelievable naivete," and although William Penn "in his Quaker heaven" would approve of Bacon's plans for Philadelphia, the author still chides Bacon for violating the "genius loci" by not using the architectural tricks typical to Karlsruhe.

Continued on page 170



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Continued from page 166

The author intimates that she "underwent the ordeal of writing the book" to exert some influence on reality. Hence, one turns with particular curiosity to Chapter 7, on "Options: A Conclusion," to see what nourishment is offered to those who persevered in this marathon through urban history. Alas, one finds little soul-food for the journey still ahead. Rather eclectically, a bouquet of samples is offered in each archetypal category. The samples have little in common except for a prevalence of high densities. The "street consciousness" of Montreal's Habitat is praised; the insular retail core of Essen, girdled by car parking, is held up to us as an example of "the linear city of pure communications." A project for Malta—stacking identical cells in front of the rocky shore and totally dependant on elevators—is admired as being "geomorphic." (Whatever happened to the author's dislike of the "ancient coercive grid tilted vertically"?) There is no hint as to whether the "options" are equally available and appropriate to advanced, developing, or poor economies, to one or to all social systems. Yet if all "options" have universal appeal, does this not negate the idea that the preference for an archetype is the expression of societal values?

At one point, the author remarks hopefully that one can "always rely on the Germans to amalgamate and abstract the original ideas of others." The amalgamation of ideas is certainly a feature of the book and one can only wish that other admirable Germanic qualities, such as precision of thought and clarity of organization, would have found equal representation on its pages. Yet the author effortlessly succeeds in one of her stated goals: "to set spinning a kaleidoscopic view of images." Perhaps even more than the old-fashioned kaleidoscope, *Matrix of Man* stimulates like a discothèque where familiar tunes are played and replayed with overlaps, blending and blurring sound and rhythm, while the flickering of harsh strobelights surprises with random configurations as themes and images are projected, flicker, blur, are erased, re-advanced, refuted.

A Giant in City Planning

BY STANLEY ABERCROMBIE

EKISTICS. *An Introduction to the Science of Human Settlements.* By Constantinos A. Doxiadis. Oxford University Press, Oxford, England. 527 pages. \$35.00. The reviewer is a senior designer with John Carl

Warnecke & Associates, and is a registered architect in New York State.

In the infant profession of city planning, Greece's Constantinos Doxiadis is a giant. Like many other planners, he is a teacher and writer; unlike many, his direct influence extends awesomely far beyond the classroom. After studying architecture in Athens and planning in Berlin, Doxiadis served as town planner for the Athens area and then as head of planning in Greece's Ministry of Public Works, a career interrupted when Italy attacked Greece in 1940. After the war, Doxiadis was instrumental in the rebuilding of 200,000 new houses in Greece, half the number destroyed in the war. The firm of Doxiadis Associates, of which he is president, has since planned development in Brazil, Canada, Ethiopia, France, Ghana, India, Iran, Iraq, Jordan, Lebanon, Nigeria, Pakistan, Saudi-Arabia, the Sudan, Syria, Venezuela, and Zambia. In this country, Doxiadis has planned housing in Louisville and Cincinnati, suggested a plan to the Redevelopment Land Agency for expanding Washington, D.C., along the Potomac, has been hired by the U.S. Urban Renewal Program to work on eliminating Philadelphia's urban blight, and by

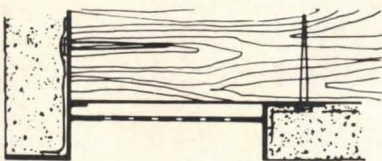
Continued on page 196

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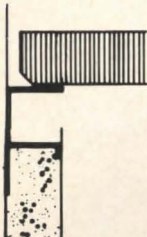
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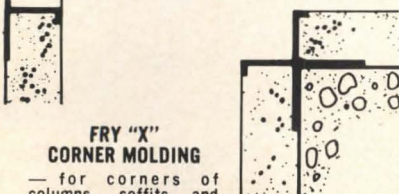
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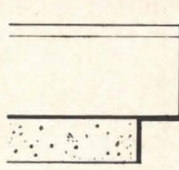
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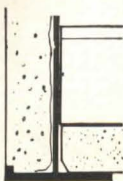
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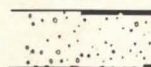
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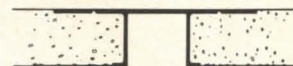
—separates acoustical tile from dissimilar materials; or serves as screed for plaster

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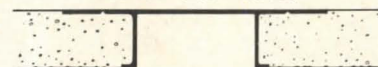


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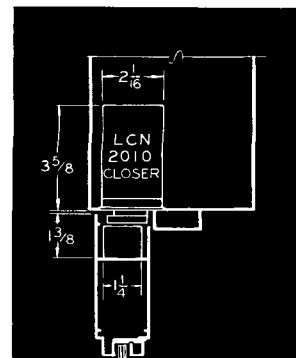
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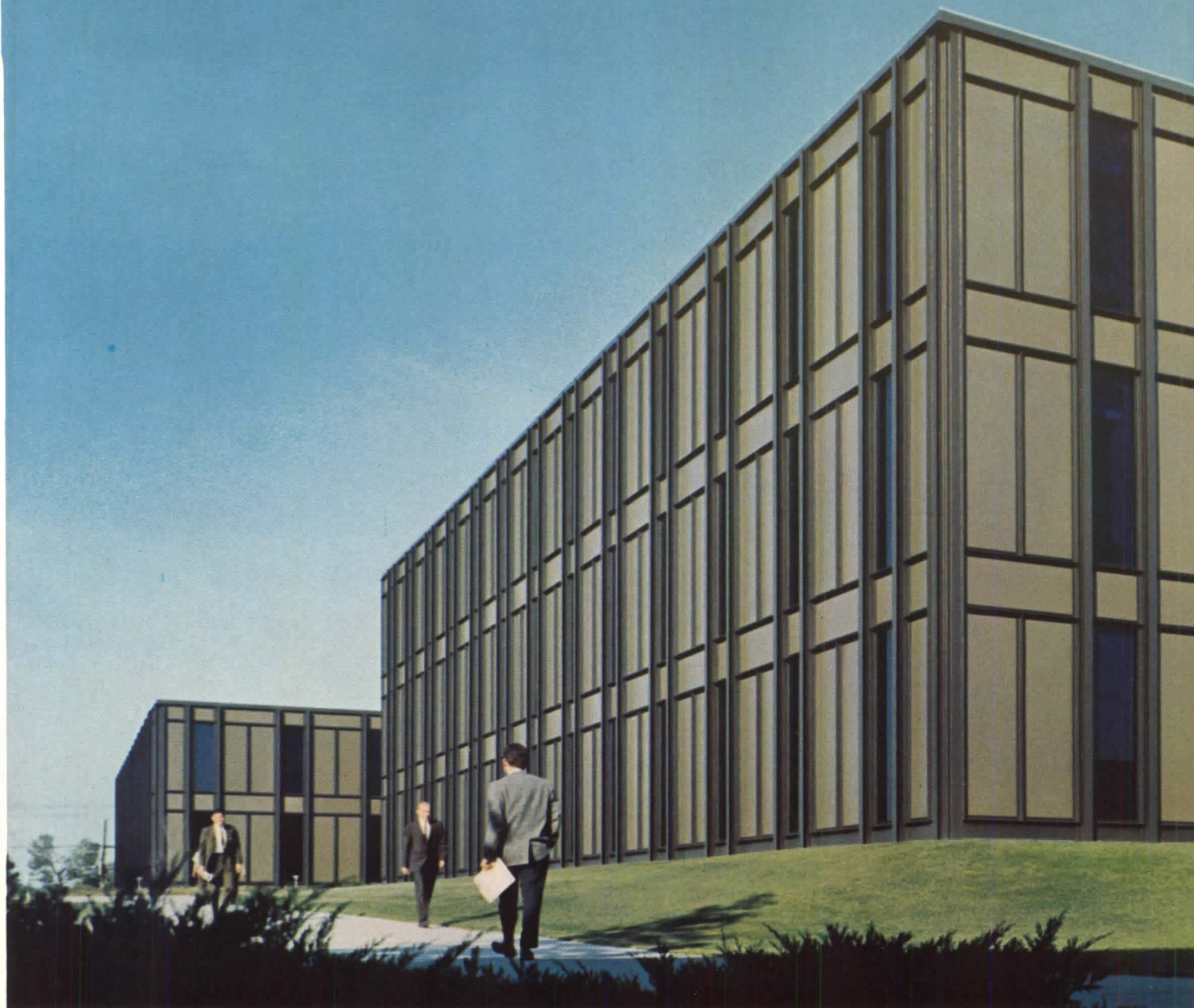


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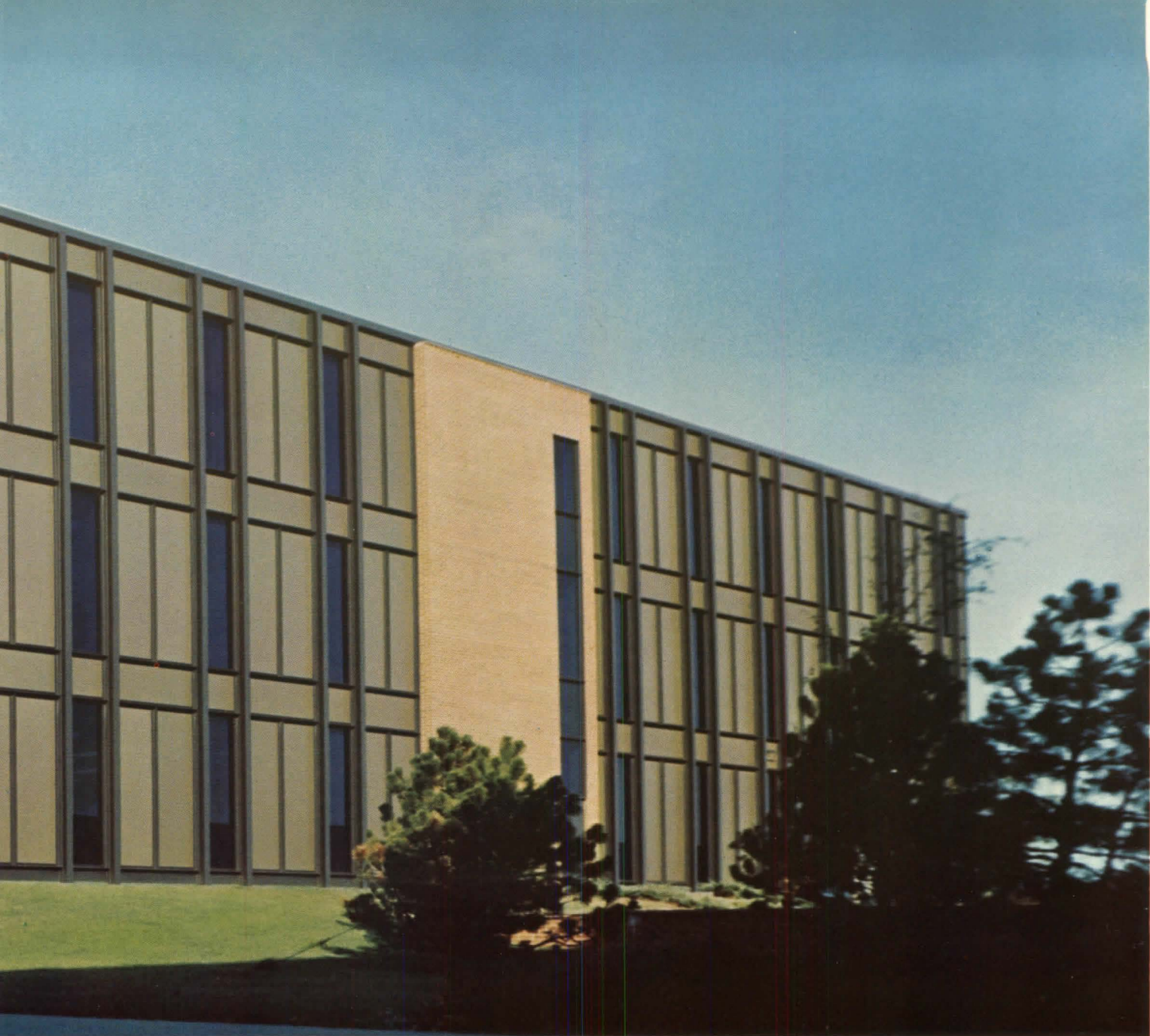




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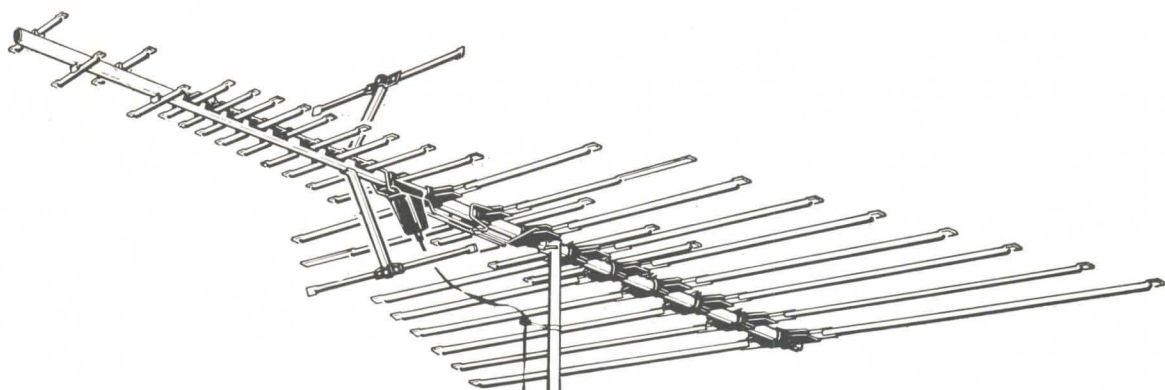
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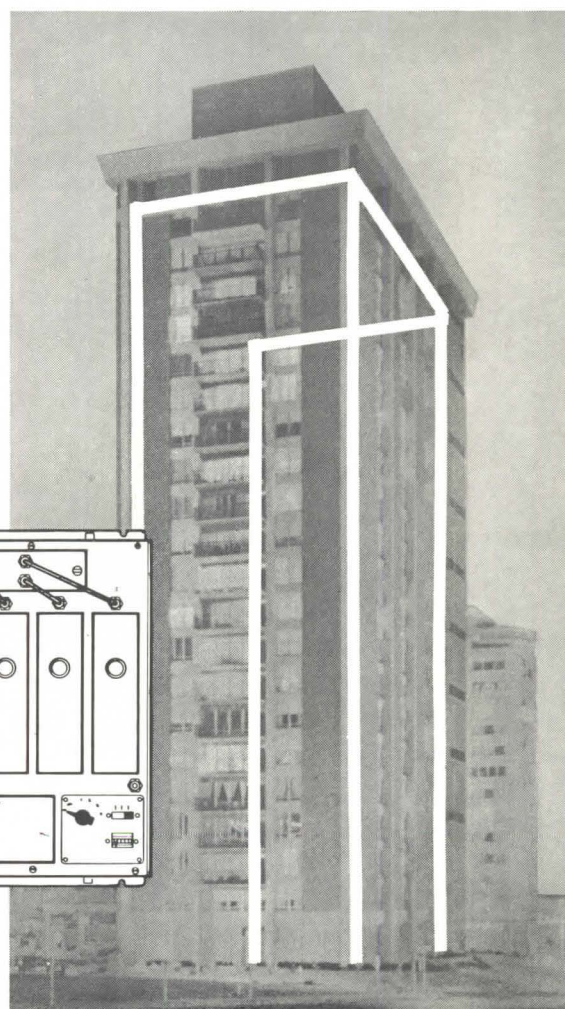
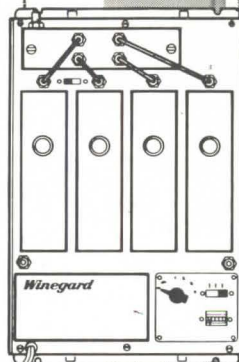
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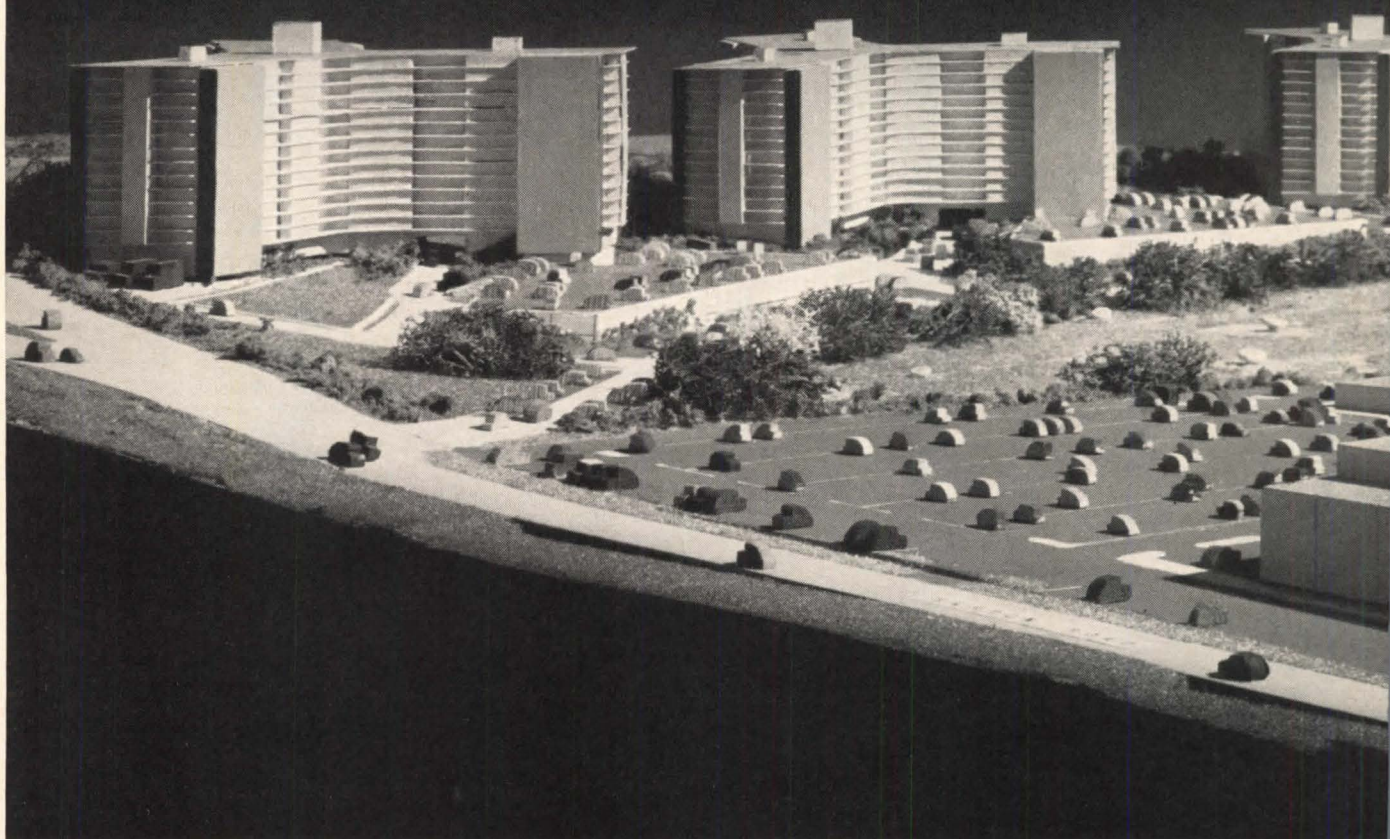
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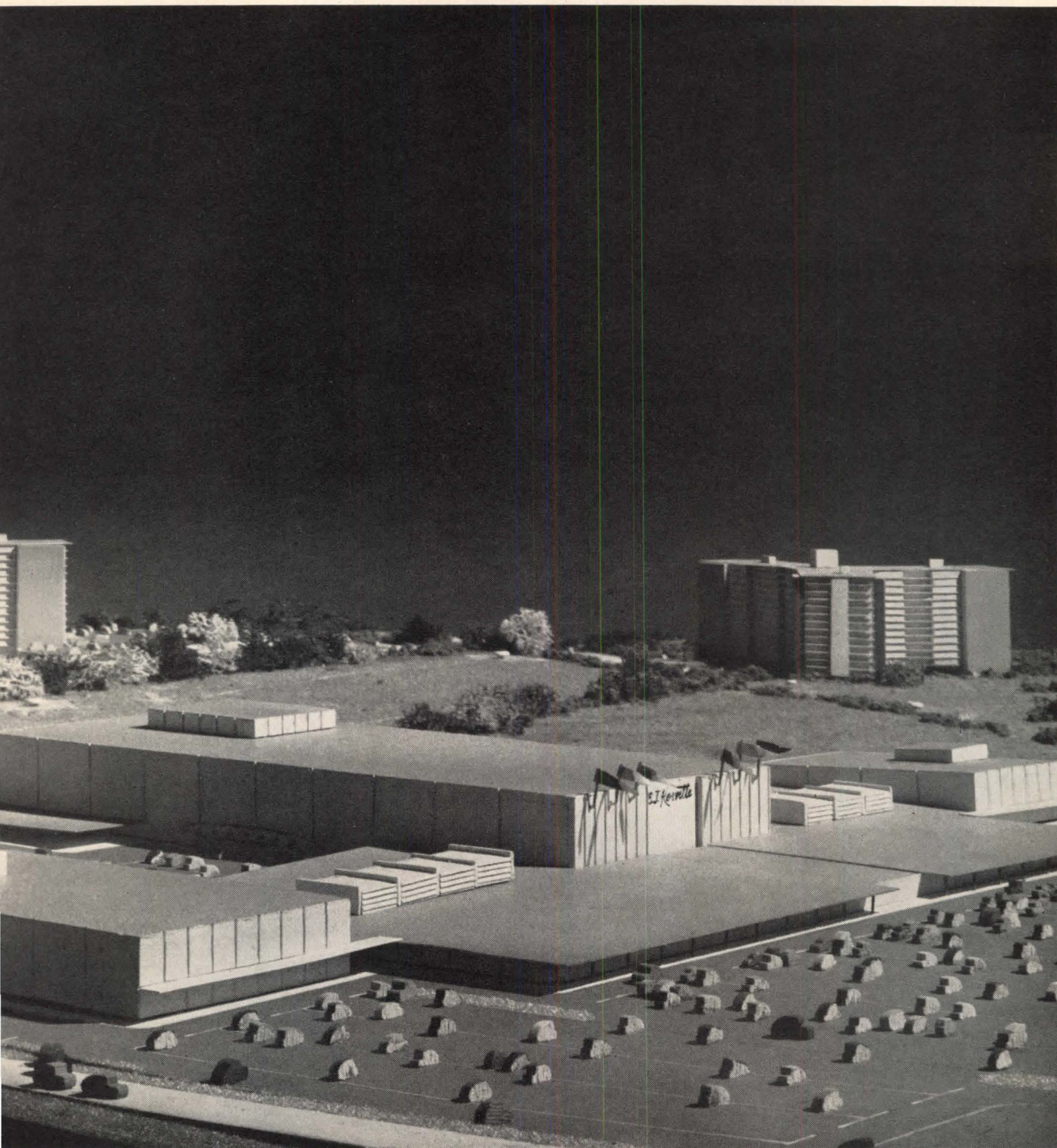
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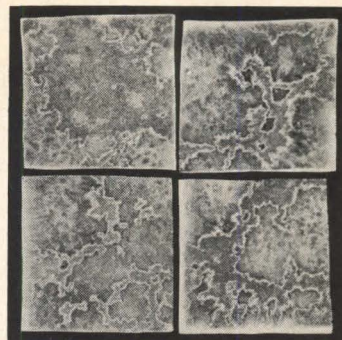
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Authoritative

THEATRES AND AUDITORIUMS Second Edition

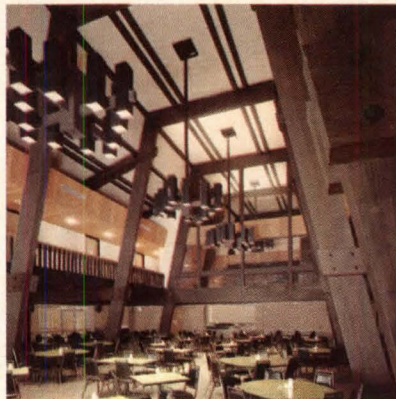
by **Harold Burris-Meyer** and **Edward G. Cole**

384 pages \$25.00

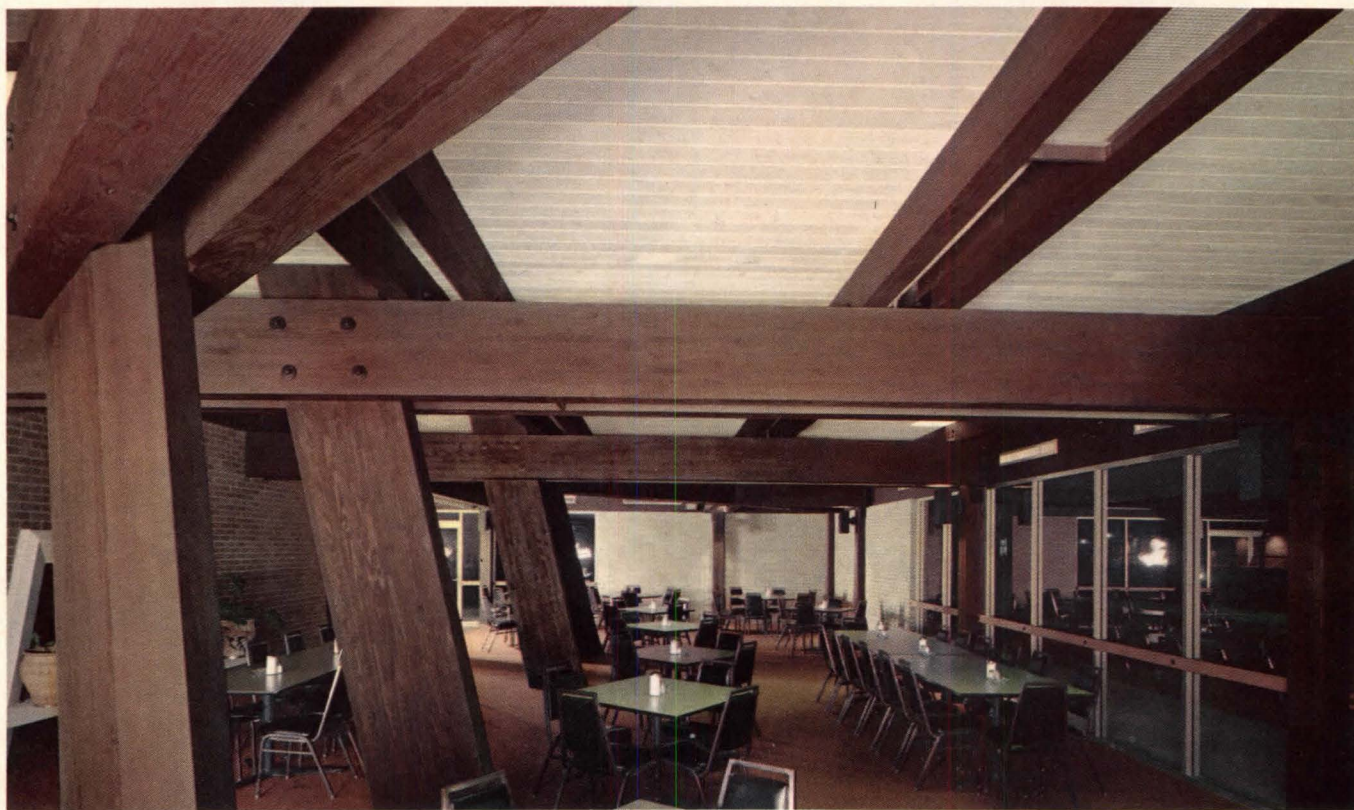
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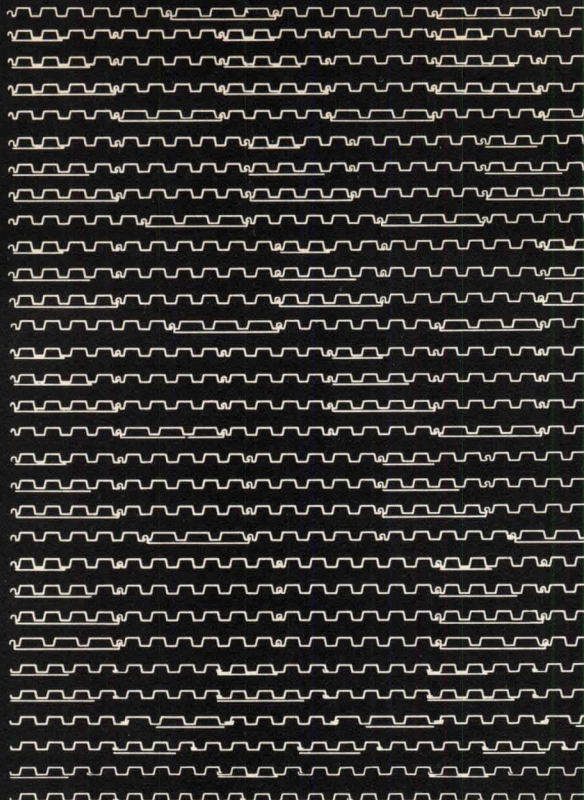
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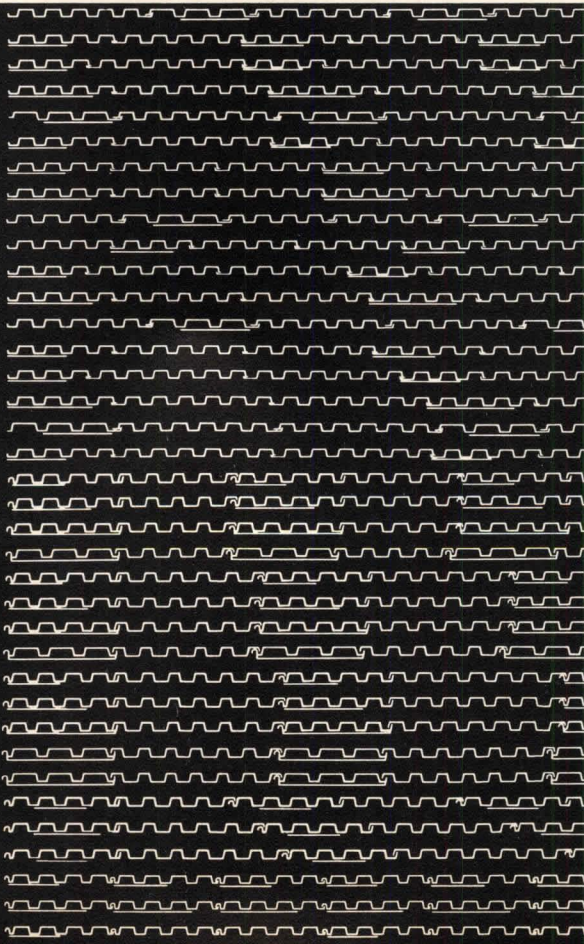


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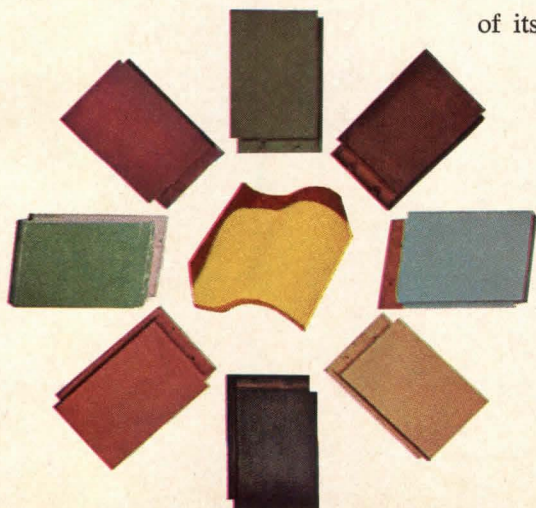
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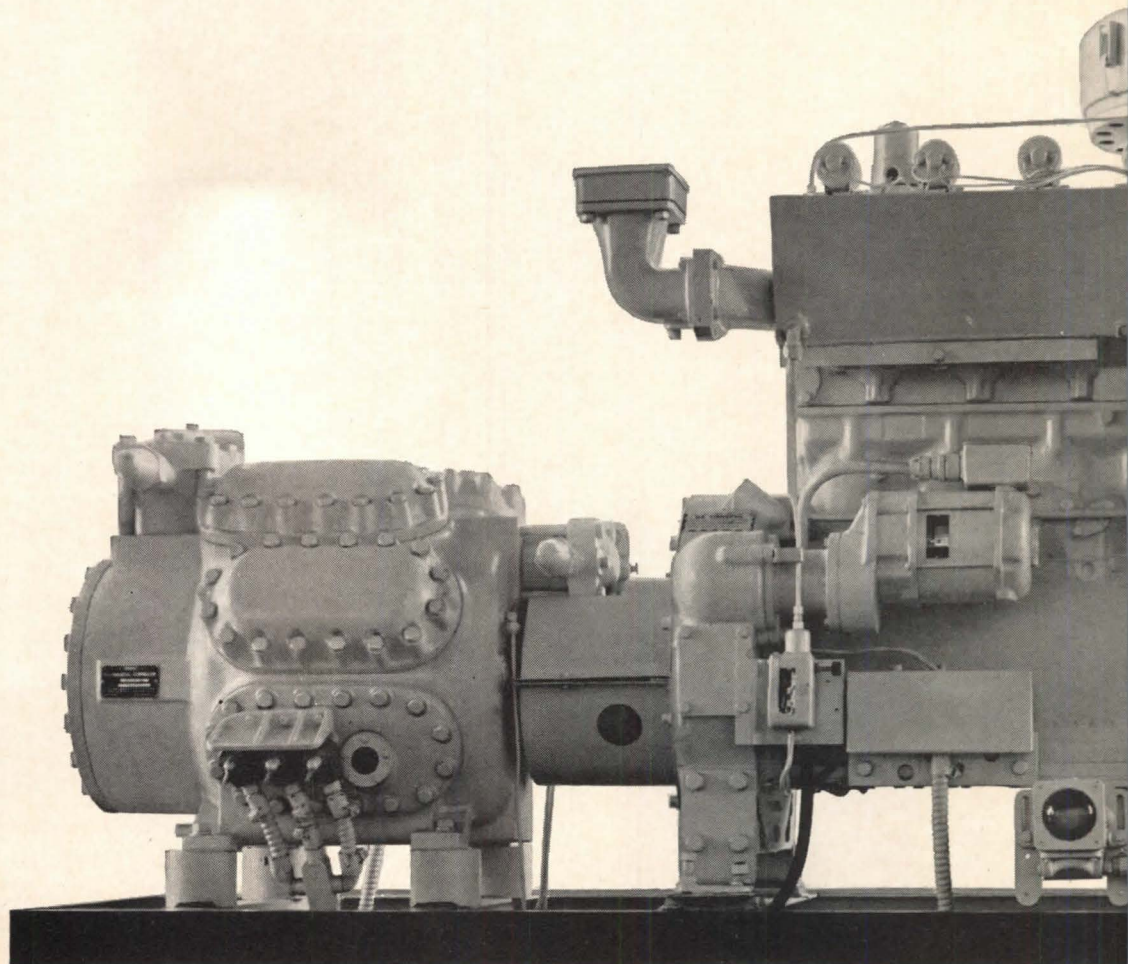
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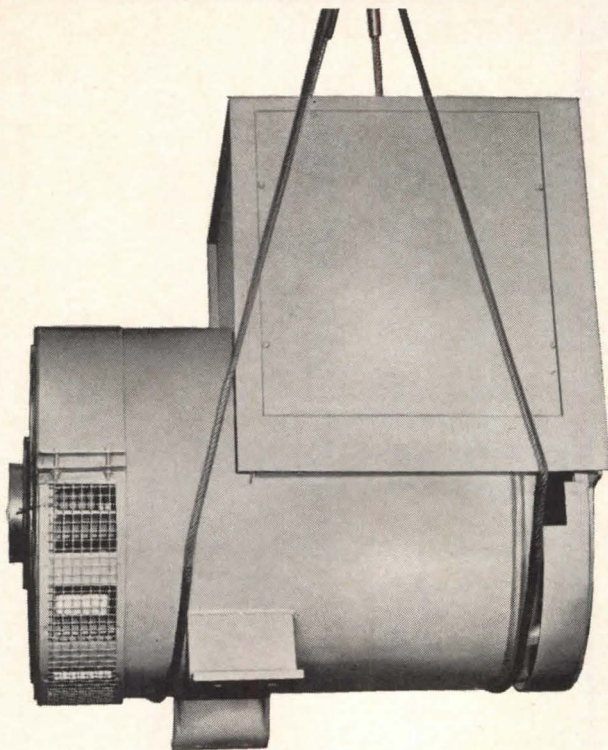
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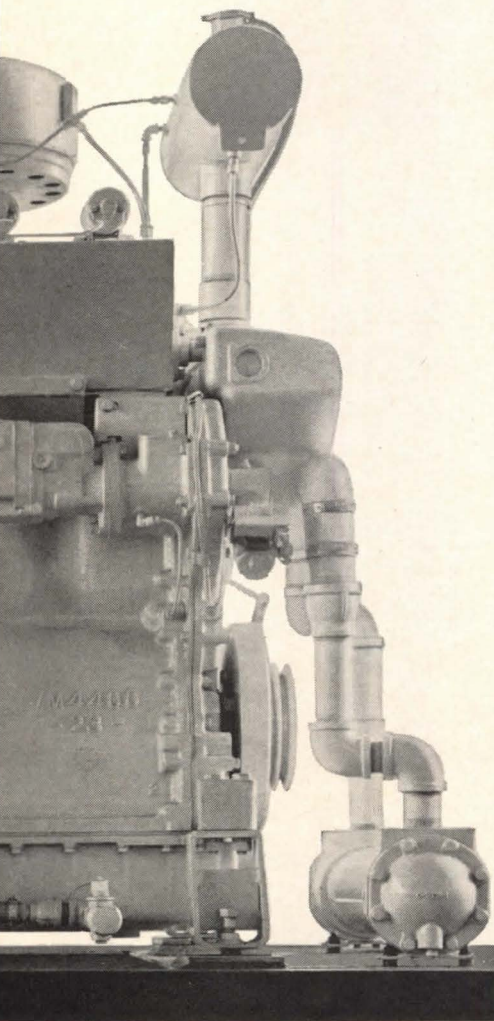
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196 Book Reviews

Continued from page 170

the Detroit Edison Company to study Detroit's role in a future urban area stretching from Pittsburgh to Chicago. In all, his work has already affected the habitation of more than ten million people, and his planning for the future, if carried out, will affect many more.

Doxiadis has now written a book outlining the principles on which his work is based. Titled *Ekistics* (from the Greek word for "household"), it is a large, handsome, generously illustrated book, but for an author of such reputation it is disappointing.

Not only in the title does Doxiadis indulge a taste for making up his own words. Throughout the text we meet such mongrels as "Anthropics," "Entopia," "Deepway," "Dynapolis." A word like "Dynapolis" (a dynamic city) is not just silly, as "Koffikup," "Sexational," and "Unedea Biscuit" are silly; it is seriously disturbing because it implies an attempt to create an elaborate mystique based on the commonplace. There are also enough abbreviations to turn a government agency green: the UDA (urban Detroit area); the CID (continuously increasing dimensionality); most intriguing of all, the IDEA (which turns out to be, disappointingly, the isolation of dimensions and the elimination of alternatives). Even many of the illustrations that make the book visually interesting are more manner than matter: the sentence "Function and structure constitute the human settlement" is illustrated with three drawings: first, a tangle of spidery lines captioned "function"; second, a heavily drawn semicircle captioned "and structure"; third, the tangle of spidery lines *inside* the semicircle, captioned "constitute the human settlement." The drawings do not even obey Doxiadis' own dictum as to scale; after an elaborate explanation of his ELS (ekistic logarithmic scale) by means of which the proper scale is to be found for the study of all units of human settlement from a single man through towns and cities to the entire earth (or "Ecumenopolis"), Doxiadis notes that his book's own maps have been reduced, of course; what is unreasonable is the pedantry of having specified that any particular scale is the proper one for the study of a town or a city.

But so much artificial gravy should not keep us from tasting the meat. Much of what Doxiadis has written is substantial and worthwhile. His conception of human settlements as growing organisms is useful, and he always considers the future implications of present problems and solutions. His advocacy of residential sectors

Continued on page 198

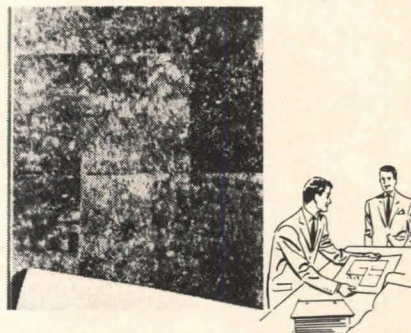
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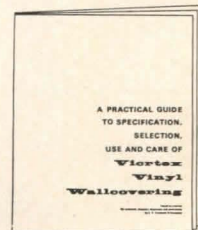
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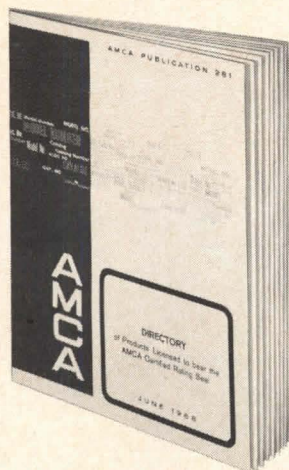
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Continued from page 196

the size of many city blocks, with limited vehicular penetration, though not novel, is sound. So is his proposal for the grouping of small communities and sharing of public facilities. His use of computers in ordering data on cities has been pioneering. His emphasis on the continuing value of the central areas of urban regions, despite residential and commercial shifts to the suburbs, is heartening.

The limitation of Doxiadis' *Ekistics*—and it is a very serious limitation—is that, although in countless graphs and paragraphs, man is considered in relation to rooms, neighborhoods, cities, land area, “net-works,” “shells,” etc., man is never considered in relation to other men. There is no mention of men's ethnic, economic, racial, or religious differences. We can see immediately what an immense omission this is if we imagine, for example, the planning needs for the Yorkville area of Manhattan. Here, the homogenous middle-class German neighborhood of a decade ago, squeezed between the rich on Park Avenue and the rich facing Shurz Park, are now also being squeezed by the overflow of Spanish Harlem from the north and the overflow of the upper middle class from the south. Beer halls and wurstshops are being replaced by department stores, tenements by giant housing blocks, and a cozy community life by confusion. Anyone who hopes successfully to guide the future development of Yorkville (or any other area, on any scale) had better carefully consider the interactions between different men and different groups of men. Not to do so (as Doxiadis, in this book, does not) is so sociologically naive as to be disastrous.

Doxiadis tells us in his introduction to the present book, however, that, while writing it, he has been preparing two others which will show “how an over-all theory of human settlements can be applied to some of the specific problems of our era” and establish “a general framework for our future action.” There is reason to hope, then, that these two future books will provide the relevance and practical value missing in the present one. Until then, half buried under the avalanche of Doxiadis' diagrams, formulae, and jargon, we can only ask, “What on Ecumenopolis is it all worth?”

NOTICES

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GUERON, LEPP & ASSOCIATES, Architects,

Continued on page 204

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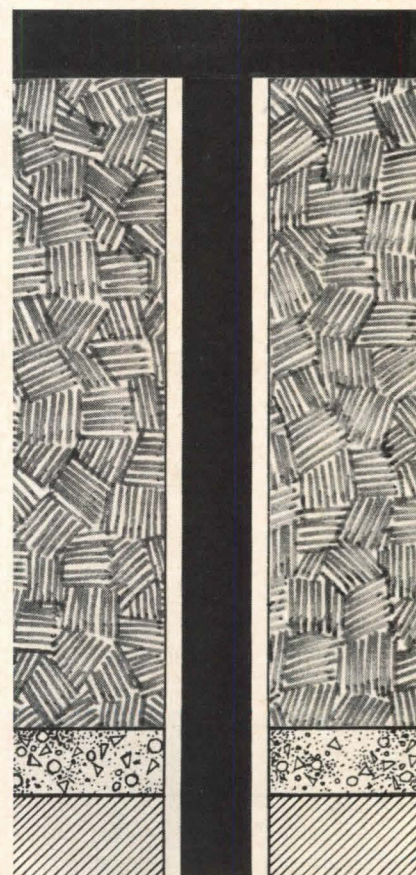
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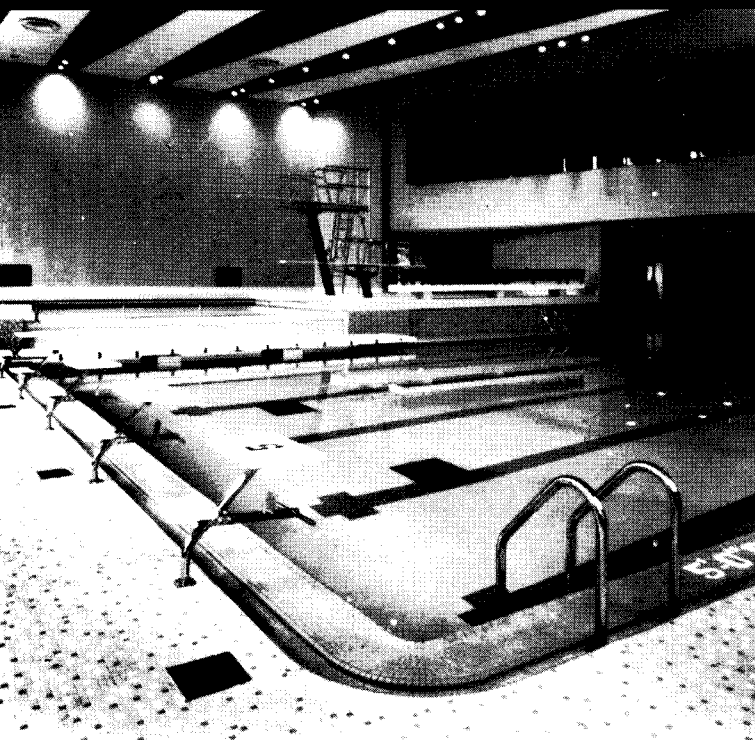
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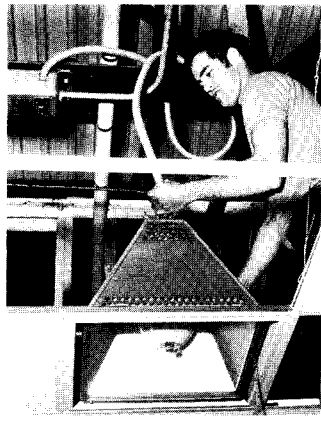
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Continued from page 204

132 Madison Ave., New York, N.Y. 10016.

HOLDEN, YANG, RAEMSCH & CORSER, Architects, 251 Park Ave. So., New York, N.Y. 10010.

New Firms

ROBERT F. BRISTOL, Landscape Architect, Bolton Rd., Diamond Point, N.Y. 12824.

ENGBERG/SHANKS, Architects and Engineers, 233 Jefferson Bldg., Peoria, Ill. 61602.

FELONEY & STURGIS ARCHITECTS, 2 Central Sq., Cambridge, Mass. 02139.

New Partners, Associates

ROBERT E. ALEXANDER & ASSOCIATES, Architects and Planners, Los Angeles, Calif., have named ROBERT H. THOMPSON, Jr., an associate in the firm.

M. PAUL FRIEDBERG & ASSOCIATES, Landscape Architects and Urban Designers, New York, N.Y., announce the appointment of five new associates: JAMES F. BALSLEY, RICHARD W. DICKINSON, JOSEPH GATES, SEYMOUR KATZMAN, and DEAN McCLURE.

GRUZEN & PARTNERS, Architects and Planners, New York, N.Y., have promoted to associate positions DAVID ENG and SAMUEL POSNER, and to associate in charge of construction administration RICHARD C. KELLER. WALLACE B. BERGER has also been named an associate.

KAHN & JOCOBS, Architects, New York,

N.Y., announce the appointment of NATHANIEL FIRESTONE as an associate.

Elections, Appointments

ANDERSON BECKWITH & HAIBLE, Architects, Boston, Mass., announce that DAVID R. JOHNSON, RICHARD C. REECE, SPIROS G. PANTAZI, and ROBERT Y.C. HAIUNG have joined the firm.

THE AUSTIN COMPANY, Engineers and Builders, Cleveland, Ohio, announce that HAROLD A. ANDERSON, President and General Manager, has been named Chief Executive Officer of the company.

WELTON BECKET & ASSOCIATES, Architects and Engineers, Los Angeles, Calif., announce that MACDONALD BECKET is now president of the firm.

EGGERS & HIGGINS, Architects, New York, N.Y., have appointed MORTON S. STONE to the position of director of public relations.

FRIDSTEIN FITCH & PARTNERS, Architects, Chicago, Ill., have named EDWARD J. TYMURA construction representative for the firm.

HOWELL DESIGN CORPORATION, New York, N.Y., Industrial and Interior Designers, announces the appointment of WILLIAM E. DEMAREE as vice president.

LESTER B. KNIGHT & ASSOCIATES, INC., Management Consultants and Consulting Engineers, Chicago, Ill., announce that ALLAN A. GILBERT has joined the firm as vice president.

WILLIAM L. PEREIRA & ASSOCIATES, Architects and Planners, Los Angeles, Calif., announce that HUGH E. MULHOLLAND has joined the firm as Director of Engineering.

Name Changes

DALTON-DALTON-LITTLE, Architects Planners, Cleveland, Ohio, upon the merger of DALTON-DALTON ASSOCIATES and ROBERT A. LITTLE & ASSOCIATES.

DESMOND-MIREMONT-BURKS, Architects and Engineers, Baton Rouge, La., upon the election of WILLIAM C. BURKS to partnership in the firm; formerly, DESMOND-MIREMONT ASSOCIATES.

FERENDINO/GRAFTON/PANCOAST/ARCHITECTS, Miami, Fla., formerly PANCOAST/FERENDINO/GRAFTON/ARCHITECTS.

KUYKENDALL, MCCOMBS, MIDDLETON & STATEN, Architects, El Paso, Tex., upon the merger of KUYKENDALL & MCCOMBS and MIDDLETON & STATEN.

PETTIT & BULLINGER, Architects, Wichita, Kans.; formerly, HIBBS & PETTIT.

JOHN PORTMAN & ASSOCIATES, Architects and Engineers, Atlanta, Ga.; upon the retirement of H. GRIFFITH EDWARDS; formerly, EDWARDS & PORTMAN.

SCHWARZ & HENMI, Architects, St. Louis, Mo.; formerly, SCHWARZ & VAN HOEFEN.

SURRATT, SMITH & ABERNATHY ASSOCIATES, Architects, Charlotte, N.C.; formerly, JEAN G. SURRATT & ASSOCIATES.

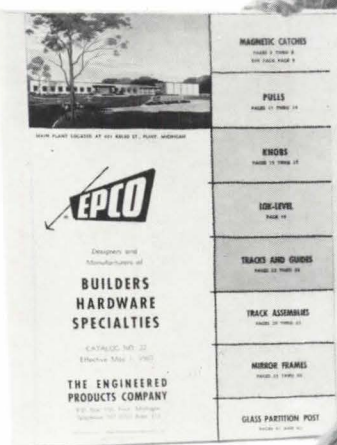
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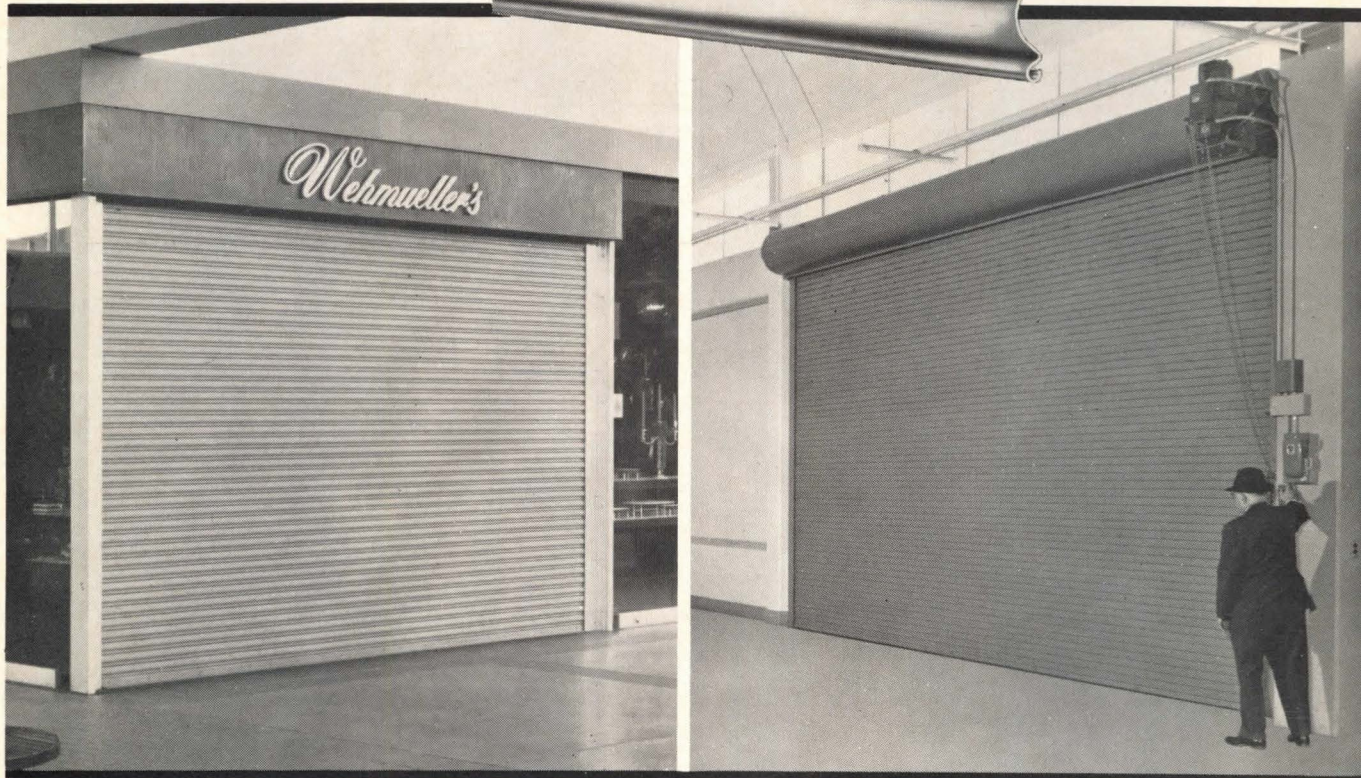
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Continued on page 208

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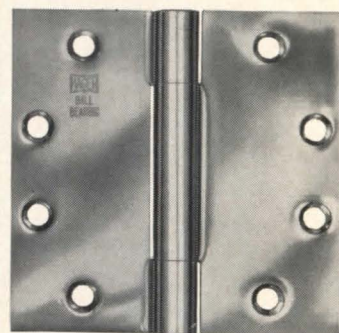
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Continued from page 206

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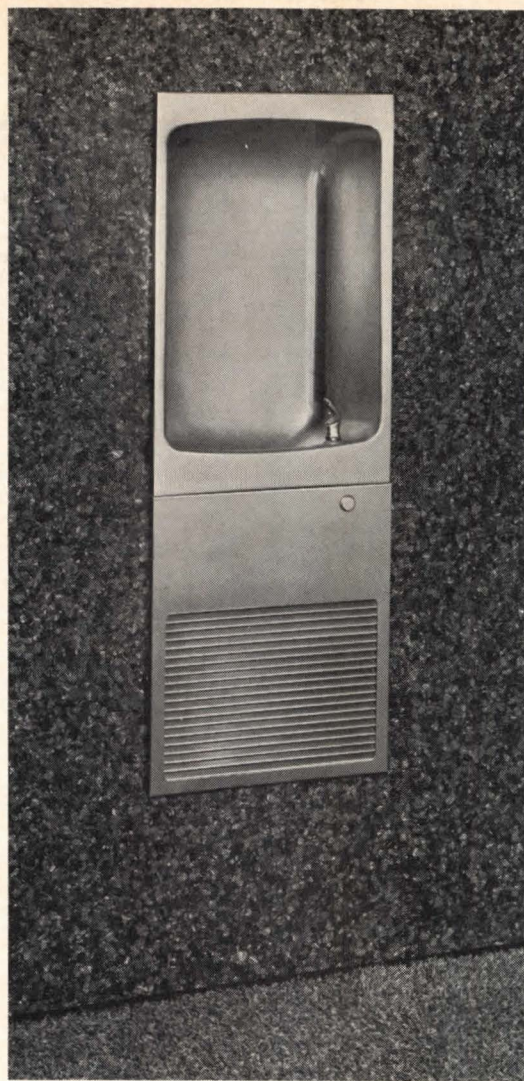
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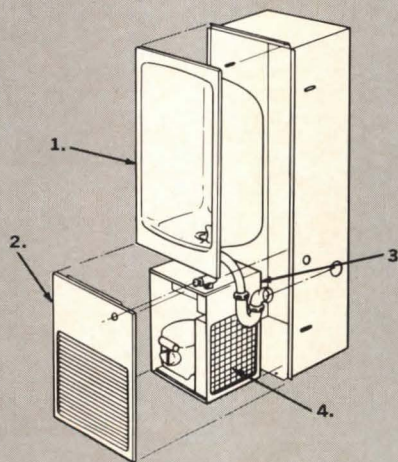
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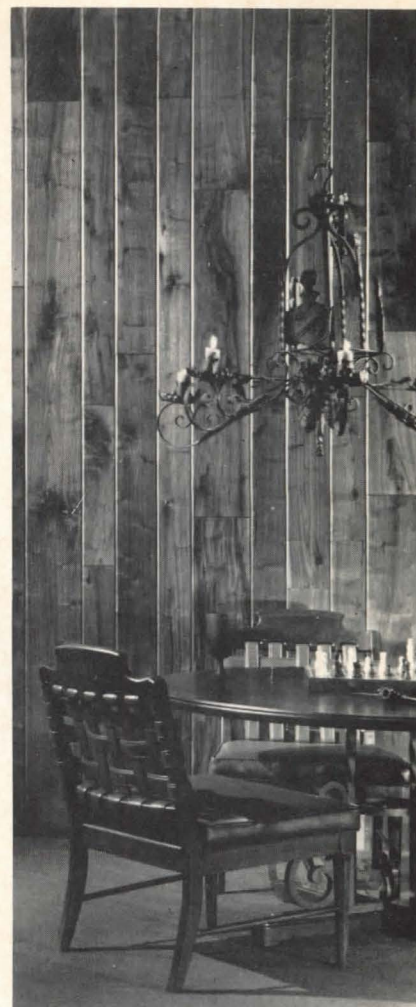
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